THE
RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
Railway Engineer · TRANSPORT · The Railway News
The Railway Times · Herapath's Railway Journal · RAILWAY RECORD.
RAILWAYS ILLUSTRATED · ESTABLISHED 1835 · Railway Official Gazette

PUBLISHED EVERY FRIDAY
AT
33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1

Telegraphic Address: "TRAZETTE PARL., LONDON"
Telephone No.: WHITEHALL 9233 (6 lines)

Annual subscription payable in advance and postage free:
British Isles and Abroad .....£2 5s. 0d.
Single Copies .....One Shilling

Registered at the General Post Office, London, as a Newspaper

VOL. 74 No. 2 FRIDAY, JANUARY 10, 1941

CONTENTS

	PAGE
Editorials	29
Letters to the Editor	33
Publications Received	34
The Scrap Heap	34
Overseas Railway Affairs	35
The Corrosion of Railway Structures	36
Electric Traction Section	37
Striking Performance of new Irish 4-6-0 Locomotive	41
Maintenance of Locomotive Axle Journals	43
Railway News Section	45
Personal	45
Transport Services and the War	49
Official Notices	55
Railway Stock Market	56

INDEX

An index to the seventy-third volume of THE RAILWAY GAZETTE *covering the issues from July 5 to December 27, 1940, has been prepared, and is now available free of charge on application to the Publisher*

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:—
Mondays to Fridays – 9.30 *a.m. till* 3.45 *p.m.*
The office will be closed on Saturdays

DISPATCH OF "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and machinery for such dispatch, and any reader desirous of arranging for copies to be delivered to an agent or correspondent overseas should place the order with us together with the necessary delivery instructions.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas, as they are stopped under the provisions of Statutory Rules & Orders No. 1190 *of* 1940

Retirement of Mr. Glynne Roberts

ALTHOUGH for the past twelve years since he has occupied the office of Secretary of the London Midland & Scottish Railway Company as well as those of Assistant to the President and Secretary of its Executive Committee, his name has become a familiar one to the company's 323,000 stockholders, only those who have a more intimate acquaintance with the everyday management of British railways than the average investor can appreciate that in the retirement of Mr. Glynne Roberts railways in general and the L.M.S.R. in particular, have lost the services of a very experienced officer. Never what has been termed a "limelight man," for the past quarter of a century he has been one of those powers behind the throne that one occasionally finds in commercial undertakings and Government departments. To have had the confidence and been in the inner counsels of such a succession of railway chairmen and general managers of such different characteristics and temperaments as Sir Thomas Williams, Mr. Arthur Watson, Mr. H. G. Burgess, Sir Guy Granet, and Lord Stamp, and retained relatively the same position, is sufficient proof that Mr. Glynne Roberts must have qualities quite out of the ordinary. Though "there'll always be an England" unfortunately for the L.M.S.R. there can't always be a Glynne. We greatly regret that ill-health has compelled him to retire sooner than most of us expected and we wish him a long and happy retirement in his beloved Anglesea. There are many who will long remember his shrewd advice and kindly acts.

* * * *

Chief Officer for Scotland, L.M.S.R.

Nearly half a century's service to the railway will be brought to a close on March 31 when Mr. John Ballantyne, Chief Officer for Scotland of the London Midland & Scottish Railway Company, will retire. With the exception of a short period between 1927 and 1932—when he was Chief Goods Manager at Euston—Mr. Ballantyne has worked in Scotland. That, no doubt, has accounted for his wide knowledge of commercial personalities and methods North of the Tweed which admirably fitted him for the appointment he is about to relinquish. During the time he has been Chief Officer for Scotland—he has held that position since the post was created in 1932—he has rendered very valuable service in developing contacts with both commercial interests and the travelling public; the success he has achieved in this sphere will be ascribed by all who know him to deeper qualities even than the width and range of his knowledge. Major Malcolm Speir who succeeds Mr. Ballantyne in Glasgow is no stranger to the L.M.S.R. Northern Division, for he was Assistant General Superintendent in Scotland from 1924 until 1931 when he took over the Managership of the company's undertaking in Northern Ireland, a position which, notwithstanding the many difficulties which have encompassed it in recent years, he has held with distinction. One of the most notable developments on the lines of the Northern Counties Committee under Major Speir's enterprising managership was the general acceleration of the train services.

* * * *

Railwaymen and Snowstorms

The story of last winter's unprecedented snowstorms in Great Britain is only slowly filtering out. The description of that which completely blocked the West Highland section of the L.N.E.R. for a fortnight, from Sunday, January 28, 1940, appears in the current issue of the *Journal of the Permanent Way Institution.* It is given by Mr. R. C. Rattray, Western District Engineer of the Scottish Area, and tells a tale of persevering work in the face of discouraging odds, for no sooner was one section of line cleared of snow than it was filled up again by a renewal of the blizzard. The endurance and good spirit of the 400 men to whom was entrusted the work of clearing the line is attested by Mr. Rattray. The force included 200 railwaymen and 200 soldiers, and he remarks on the fine spirit of the men, even when faced with the disappointment of seeing their efforts brought to naught by subsequent storms. Although working under very unpleasant conditions they never

grumbled, and to the end displayed continuous sheer grit. In the fruitless arguments which take place in suburban trains may often be heard discussions about whether any good comes from war, and those who support the affirmative usually cite the opportunity it provides for the exercise of courage and selfless devotion. The foregoing shows that other opportunities are available, and are not neglected.

* * * *

Lessons of Blizzards

In the description of the West Highland stowstorm of 1940 referred to in the foregoing note, Mr. Rattray makes some valuable suggestions for efficiently coping with such conditions. Experience, he says, proved that engines fitted with snow ploughs should not be run singly for clearing purposes, but two engines attached tender to tender and both fitted with a plough make the most satisfactory arrangement, as retreat is then always possible should the leading engine become blocked. The running of engines tender first in front of a train should be avoided whatever the trouble involved. Every ballast train or special train carrying squads for snow-clearing operations should have an engine in front and one behind, the latter trailing, and both engines fitted with snow ploughs. A train so fitted has much less risk of becoming snowbound. The provision of portable telephones is advisable, and in the West Highland blizzard telephones connected into the ordinary station-to-station omnibus circuit were installed in the platelayers' cabins or in portable huts at intervals of about a mile as progress was made. They were all manned throughout the day, and proved invaluable. A first-aid post with a stretcher was always established in the hut nearest to the military party. The use of a high-temperature gas torch for melting the ice out of the check rails was found to be effective, although somewhat tedious. Mr. Rattray emphasises the great importance of adequately dealing with frozen check rails, for neglect may cause derailment, and numerous broken check-rail chairs may be expected as a result of the passage of the first engine, should the frozen snow not have been dealt with before. Calor gas was used for this purpose.

* * * *

Overseas Railway Traffics

During the past fortnight the traffic returns of the Argentine railway companies have continued their disappointing trend. On the Buenos Ayres & Pacific there is now a decline of 1,692,000 pesos over the 26 weeks of the financial year, although last week there was a small improvement of 96,000 pesos. The Buenos Ayres Great Southern takings have fallen by 569,000 pesos in the past fortnight, and for the financial year to date are now lower by 2,895,000 pesos. Central Argentine traffics are lower by no less than 11,725,000 pesos for the 26 weeks, of which 251,900 pesos have been lost in the past fortnight. On the Buenos Ayres Western the decline to date is 1,468,000 pesos, but over the fortnight the traffics are lower by only 16,000 pesos. On the Argentine North Eastern there was a fall of 40,100 pesos on the fortnight, and of 222,400 pesos on the year to date.

	No. of Weeks	Weekly Traffics	Inc. or Decrease	Aggregate Traffic	Increase or Decrease
Buenos Ayres & Pacific* ...	26th	1,402	+ 96	30,364	— 1,692
Buenos Ayres Great Southern*	26th	2,185	— 388	50,817	— 2,895
Buenos Ayres Western* ...	26th	828	+ 11	17,735	— 1,468
Central Argentine*	26th	1,408	— 92	36,262	— 11,725
		£	£	£	£
Canadian Pacific	52nd	996,000	+ 147,800	34,193,000	+ 3,936,800

* Traffic returns in thousands of pesos.

Central Uruguay traffics for the 26 weeks of the financial year show a rise of £32,609, although there is a decline in local currency; for the like period there is a drop of 805,500 pesos in the gross receipts of the Entre Rios.

* * * *

Bengal-Nagpur Railway Dividends

The board of the Bengal-Nagpur Railway Co. Ltd. at its meeting on December 19 cancelled the final dividend which it had proposed on October 24 and in its place proposed a second interim dividend. This was of ½ per cent., the same rate as the final dividend previously announced, and in making known their decision the directors of the company pointed out that they did not expect any further payment of dividend for the financial year. In view of this there would seem at first sight little reason for the change in the description of the payment. In practice, of course, the amount to be received by the stockholders will not be changed. The alteration in the description of the dividend payment is understood to have been occasioned by the fact that the accounts for the year had not been completed at the time of the announcement, and the course of proposing a second interim instead of a final dividend is usually adopted when this is the case. It may be recalled that in January of last year the Great Western Railway Company pointed out that it was prevented by general statute from declaring dividends until the accounts had been certified by the auditors. This was a reference to Section 30 of the Railway Companies Act, 1867, which enacts that no dividend shall be declared by a railway company until the auditors have certified that the accounts contain a full and true statement of the financial condition of the company and that the dividends to be declared are *bona fide* due thereon. On that occasion the delay was due to the negotiations which were then in progress on the terms of the financial agreement between the Government and the British railway companies to operate during the period of control.

* * * *

Ninety Loud Speakers at One Station

On December 19 the Minister of Transport replying to a Question by Mr. R. Cary, Conservative M.P. for Eccles, as to whether he was satisfied with the arrangements made at Crewe station for conveying information to passengers said that he was, and added that there were ninety loudspeakers in use for the purpose at this station. We may add that the installation at Crewe is one of the most modern in the country and the loudspeakers are distributed over the whole of the station. On Platform 1 there are 20; Platform 2, 22; Platform 3, 11; Platform 4, 16; Platform 5, 14; and Platform 6, 7. The loudspeakers are normally used for giving information to passengers between 8 a.m. and midnight; occasionally they are used after the latter time but in general their use is restricted during the night hours in order not to disturb those sleeping in trains using the station. The loudspeakers have been in use for some eight months and the service they have provided is considered very satisfactory. The provision of so many loudspeakers spread over six platforms at first sight might occasion surprise, but there is no doubt that in these matters it is better to err on the side of generosity than of niggardliness. In some cases where one or two loudspeakers have been installed at smaller stations it has been found that passengers experience difficulty in understanding the information broadcast through them when a train is arriving, owing to incidental noise. Crewe station has long platforms, but the general provision of loud speakers is understood to have succeeded in overcoming the natural disabilities which attend the broadcasting of information to passengers at busy stations.

* * * *

Shipping American Carriages to Europe

The import into a European country during wartime of railway rolling stock from the U.S.A. is sufficiently unusual to merit special reference, if only for the fact that the transaction involves the comparatively hazardous journey across the North Atlantic. In more settled times than the present, the Companhia dos Caminhos de Ferro Portugueses (Portuguese Railway Company) placed an order with the Edward G. Budd Manufacturing Company of Philadelphia for 28 stainless steel passenger coaches constructed to the Budd spot-welding system, and we have already made various brief references in our columns to this. The vehicles are the first of their kind to be built in the U.S.A. for export and the finance was arranged by the Export-Import Bank, with the assistance of the Bank of Portugal. For obvious reasons little was said about the transaction until it was satisfactorily completed, and the shipments were made from Philadelphia under strict secrecy. Not until the vehicles had been successfully off-loaded at Lisbon on July 17 last, was it revealed that they had been conveyed from the U.S.A. to Europe by the Franco-Iberian Line freighter *Cypria*. Three days after their arrival the annual general meeting of the Portuguese Railway Company was held in Lisbon, and

the shareholders and directors adjourned the meeting for a short time in order to visit Rocio station and inspect the new vehicles. The Portuguese Minister of Public Works also inspected the coaches on the same day, and all were favourably impressed with their general appearance. These coaches, which we described in our December 27 issue, have been obtained for service between Lisbon, Oporto, and Irun.

* * * *

A Means to Improve Punctuality

It is a curious phenomenon, but none the less a real one, that smartness begets efficiency, and anything in the nature of an easing of conditions, in which smartness may be less imperative, tends towards inefficiency. We recall the action of a then recently appointed but now departed general manager who, demanding the reason for the habitual lateness of a certain train, and being told it required more time at a certain phase of its journey, knocked several minutes off its schedule and dared the staff concerned to run it late again. It never was, and the injection of ginger at that particular spot quickly penetrated the whole body politic of the railway. When, at the outbreak of war, maximum speed on our main lines was limited to 60 m.p.h., and bookings were accordingly spun out, enginemen found it necessary to work under comparatively easy steam. This new condition seems gradually to have percolated into the system of not a few of them, so that, besides observing the lower top speed limit, they now tend to run uphill more slowly than they did, so losing precious time, even though the train may be already late. Punctuality was never more important than now when the railways have so great a volume of traffic to handle; and if this no-doubt unwitting tendency to unduly easy uphill running—and its effect on punctuality—were pointed out to the enginemen concerned, they would, we feel sure, gladly respond.

* * * *

The Air Line Crossing the Tasman Sea

The new Empire air link between Australia and New Zealand which crosses the 1,340 miles of the Tasman sea is now firmly established. In the first four months of operation the two flying-boats *Aotearoa* and *Awarua* made 45 trips, a total of 60,300 miles. At first the schedule called for one flight a week in each direction, but already the service has been increased to three flights in each direction a fortnight, on account of the doubling of the British Overseas Airways Corporation's horseshoe service from Durban to Sydney, and the inauguration of a Pan-American service from San Francisco to Auckland. Now it is likely that the trans-Tasman crossings will be further increased to two services a week each way. The flights have been made with remarkable regularity, despite the fact that weather conditions over the Tasman Sea are notoriously unreliable, and, indeed, many persons said that it would be impossible to keep to a timetable. However, meteorological services have been so improved and the performances of the British flying-boats so satisfactory that a regularity figure of 97·6 per cent. has been achieved. Flying time for the crossings averaged 9 hr. 14 min.

* * * *

Cover of Darkness

We recently read an attack on railway blackout policy alleging that too little light was allowed on station platforms, covered footbridges, and in carriages. About the same time, other correspondents were writing to the press to voice their concern at possible guidance to aircraft from colour-light signals. The whole question of how much light to permit in a blackout is complicated by being as often debated with passion as with reason. We read earlier in the war of " hostile crowds " collecting in front of premises which they considered insufficiently blacked-out. Any member of those crowds who dropped a sixpence in an unlit carriage on the way home would be liable to write to the papers demanding brighter lamps in compartments. To avoid carelessness it has been necessary to encourage the view that a crack of light in a window will attract a squadron of bombers like moths to a candle flame, which in the present imperfect state of human development is often a more potent argument for caution than the knowledge that many such cracks together are just as likely to guide the aircraft on their way elsewhere.

Preliminary Canadian Figures for 1939

THE Dominion Bureau of Statistics reports, in a preliminary statement on the year's railway operations, that the total revenues of the steam-worked railways of Canada increased by more than $30,000,000 in 1939 as compared with the previous year. Revenue amounted to $367,179,095 as against $336,833,400 in 1938, and operating expenses increased to $304,373,285 from $295,705,638. The slump in railway revenues which took place in 1938 was carried over in the first four months of 1939, but from May until the end of the year, marked increases were shown each month. The report attributed the increased operating expenses to changes in the volume of work and not in wage rates. Reductions in basic rates of pay, which had been in effect for several years, were restored fully by April 1, 1938, and no major changes had been made since. Interest on funded debt was reduced from $79,215,333 in 1938 to $79,022,934, and the outstanding funded debt at the end of the year was reduced from $1,568,269,672 to $1,533,373,521. The Canadian Pacific Railway increased its income from $1,262,382 the previous year to $9,782,148, and the Canadian National's loss amounted to $38,239,264, against $54,470,997, a reduction of $16,231,733. The effect of Canada's bumper wheat crop in 1939 was shown in the rise in total ton-mileage to 31,464,991,270, a 17·3 per cent. increase over the corresponding 1938 figure. Passenger traffic fell from 20,911,196 in the previous year to 20,482,296 passengers carried in 1939; this figure has been lower only twice in the last 38 years, according to the report.

Only one passenger was killed in train accidents during the year, and 322 were injured. The number of employees killed was 45, and the number injured 879. Comparative 1938 figures were not given. One hundred persons, 90 of them motorists, were killed in highway crossing accidents, and 282 were injured. This compared with 96 killed and 235 injured the previous year. The number of railway employees increased by 1,538 to 129,362, the report states, and the total railway payroll in 1939 was $200,273,668, compared with $195,108,351 the year before. The average hourly wage for all employees on an hourly basis was 62·5 cents, compared with 62·1 in 1938, and their average wage for the year was $1,458. Employees on a daily, monthly, or annual basis numbered 26,135, an increase of 451, and their salaries amounted to $47,110,114, a yearly average of $1,803, against $1,779.

* * * *

An Orgy of Error

MISUNDERSTANDING and misrepresentation of the intentions, rights, functions, and finances of the railways were common enough in times of peace. Since the railways passed under Government control and it became necessary to evolve a financial agreement to cover the time that the main-line companies and the London Passenger Transport Board were operated under the Ministry of Transport in the national effort, there has been an even more widespread misapprehension as to the position which the main transport system of the country occupies. Although in itself the financial agreement between the railways and the Government is not an unduly complex piece of machinery—at least its main principles, whatever else may be said for them, should be readily comprehensible—there would appear to be almost a conspiracy among certain sections of the press to misrepresent the basic principles of the pact which was conceived by the Government and accepted by the companies after lengthy negotiations. On a number of occasions we have found it necessary to draw attention to certain glaring mis-statements which have been made relative to the position of the railway companies under the financial agreement. Seldom have we seen so many errors of fact compressed within so few words as has been achieved by *The Accountant* of December 28. The passage to which we refer is headed " Railway Charges and the Public," and is as follows :—

> Further increases in working costs during the current half year will, it is believed, cause the railway companies to ask for power to make another increase—the third since May—in rates and charges. Apart from the fact that such a step would conflict with the Minister of Transport's statement on the subject last month, it raises questions of general importance. In particular, there is the issue

of discrimination between various classes of railway users. During the last war, increases were on a general basis, and this practice was followed in May last. But the subsequent increase on December 1 does not apply to season tickets, workmen's fares, and the London Transport railway system. Those exclusions are justified, but in practice they represent a system under which the community as a whole subsidises certain sections. That is a revolutionary innovation, since the whole body of English railway legislation dealing with charges is based on the principle of non-discrimination. A more important point is that the railways have established the virtual right to increase their charges automatically as working costs advance, which is in contrast with conditions in other industries. It also contrasts with the position of the large number of employed persons whose rates of pay are more or less stabilised in spite of increases in the cost of living, a process in which higher railway charges are among the factors. In this connection, it is to be remarked that there is a considerable difference between the position of wage earners on the railways and in other industries. Admitted that the railway industry can make out a good case for special treatment, but the whole relationship between companies, the Treasury, and the community should be reviewed in the light of wartime experience to date. The existing position of uncertainty is fair neither to the community nor the stockholders.

Possibly the most convenient way of dealing with this effort is to take the erroneous phrases one by one; setting beside them the true position the result is as follows :—

will cause the railway companies to ask for power to make another increase in rates and charges.

The railway companies did not ask for charging powers. The Government undertook to adjust charges to meet variations in working costs arising from the war.

During the last war, increases were on a general basis.

Increases in the last war were not on a general basis; the only increase was one of 50 per cent. on passenger fares. There was no increase on goods traffic.

in practice they represent a system under which the community as a whole subsidises certain sections.

In fact the community as a whole does not subsidise sections; the subsidy is met by railway owners.

That is a revolutionary innovation.

To say that a subsidy is a revolutionary innovation is absurd; it is a century old for shipment coal and half a century old for workmen's travel.

the railways have established the virtual right to increase their charges automatically in contrast with conditions in other industries.

The Government undertook to adjust railway charges, but if the contrast is made between railway charges and charges of other industries, the sentence, if reversed, is roughly right.

It also contrasts with the position of the large number of employed persons whose rates of pay are more or less stabilised.

This contrast could more properly be drawn with railway owners. On such a contrast employed persons are better off absolutely and in relation to the use of services or capital respectively.

the railway industry can make out a good case for special treatment.

The railway industry has not received or asked for special treatment, but before the war it did ask for equality of treatment and it did not get it.

It will be seen from the above that little of fact and nothing of importance remains of the note in *The Accountant* when it has been subjected to analysis. In some things, at least, the readers of that journal must be assumed to place accuracy very high. They are hardly likely to add to their knowledge of railway matters unless greater care is taken in the verification of facts presented to them.

Locomotive Running Department in Wartime

IN according a sometimes belated and uncertain recognition to the work of the railways in maintaining their services during periods of aerial attack, the public probably thinks first of the problems presented to the operating and engineering departments. The locomotive that hauls the trains tends to be taken for granted, so that less tribute than is its due is paid to the department responsible for providing motive power at short notice and often over unexpected routes, to say nothing of ensuring efficient maintenance at all times despite the inconvenience of the blackout and the danger of bombs. As far as the blackout is concerned, provision for screening locomotive cabs had been made before the war, and in the first six months things went almost normally. The first war problems presented to locomotive departments were not so much those of aerial bombardment as the prospects of invasion and the consequent isolation of depots, two matters brought to the pitch of urgency by the changed military situation after the evacuation from Dunkirk. Actual bombing was soon added to these possibilities, increasing in severity from early July to a climax in mid-September. Taking as an example the case of the Southern Railway, these conditions were countered by decentralising administration, so that depots could carry on as efficiently as possible on their own initiative should communications be seriously disturbed.

The difficulties and dangers of work in the total blackout now rendered imperative are evident, particularly in their hampering of operations such as firelighting, firecleaning, and running repairs. In spite of this there has been no falling off in the standard of maintenance as measured by miles run per failure, the exceptional measures taken in this respect having proved fully effective. No less exacting than the demands upon the energy and resource of the staff are those frequently made upon their courage, and these are as amply answered; but on no occasion has the staff failed to cope with a situation increasing tenfold the call upon its initiative, at the same time displaying many instances of great courage. Drivers, firemen, and other running staff have to contend with inconveniences and dangers peculiar to their work, accepting both with the same philosophy and indifference as their colleagues. In spite of their exposed position in air raids, casualties among them have been very few. Present conditions often entail long hours of duty, and working heavy and important traffic over unusual routes. Air raids, by slowing up traffic, increase line occupation and involve the provision of greater numbers of locomotives and crews, with consequent increased demand on the servicing staff. Breakdown gangs have also had their activities increased, and additional high-capacity steam cranes have been provided at strategic points. Prohibition of lighting generally means that the gangs now have to work in daytime, when they have on occasions been attacked by enemy aircraft, not without fatal results. Yet in spite of the scale of aerial bombardment, the effects on the personnel and equipment of railway locomotive departments have been ridiculously small. On one system serving an area particularly liable to attack only one locomotive to date has suffered any considerable damage, and that yielded a large amount of valuable material for reissue. Fortune still seems to favour the brave, and the unprecedented conditions of modern war undoubtedly stimulate exercise of the qualities of courage, resource, and tenacity inherent in the British people.

* * * *

York—Darlington Railway Centenary

AN important section of the L.N.E.R. East Coast main line was 100 years old last Saturday, for on January 4, 1841, the Great North of England Railway was opened between York and Darlington by the running of two coal trains from the latter place to the coal depots at York. Today those coal trains have grown to 20 every day of the week, which is the average number that has been operated over this route by the L.N.E.R. from the Durham and Northumberland collieries to the south since the end of February, 1940. The two first trains consisted of 101 and 99 small wagons, each hauled by two locomotives of the neighbouring Stockton &

Darlington Railway, named *Pilot, Witton Castle, Magnet* and *Tory*. They were accompanied by two of the directors, the Secretary, the Engineer, and other officers of the railway and travelled at an average speed of 15 m.p.h. over the single line that then connected the two towns. The railway was opened for passenger traffic on March 30 of the same year, when two trains were run to York and back from a temporary terminus at Darlington (Bank Top). The journey took about 3 hours each way. The opening of the York and Darlington line completed the last link in a chain of 381 miles of continuous, if somewhat circuitous, railway between London and Carlisle. After many vicissitudes, the Great North of England was absorbed by the Newcastle & Darlington Junction, a line which became the York & Newcastle and later, in 1847, the York, Newcastle & Berwick. In 1854 the more comprehensive title of North Eastern Railway was assumed and remained until the N.E.R. became one of the constituent companies of the L.N.E.R. upon grouping in 1923.

* * * *

Artificial Water Catchment

IN the 1939 Overseas number of THE RAILWAY GAZETTE, reference was made to an artificial water catchment provided at Perenjori, in the north-eastern portion of the Western Australian wheatbelt, whereby a specially-prepared area, comprising approximately eight acres, was given a surface of Terolas to provide a satisfactory run off to the adjacent reservoir. The catchment has now experienced its second winter, and a recent inspection shows that it is standing well up to expectations. The original work was carried out in experimental sections. Asphaltic weed-killer composed of crude oil plus 20 per cent. of bitumen was first applied, followed at suitable intervals with coatings of Terolas in varying strengths. On one area of half an acre no weed-killer was applied, while on another small section weed-killer but no Terolas was put down. So far as the areas with both weed-killer and Terolas are concerned, little variation was noticeable in the different sections where varying strengths of the mixture were laid, the weed growth being practically non-existent. On the section where the Terolas was applied without any weed-killer, however, weeds have broken through the Terolas surface, and there is a fairly free growth. On the small section on which weed-killer only was applied, there are no weeds, illustrating the effectiveness of the weed-killer and the necessity for this preliminary treatment if a permanent and effective surface is to be obtained. The results of the experiments are continuing to be watched, and, if the present satisfactory results continue, consideration will be given to extending the experiment to other areas where the natural surface of the country is unsuitable for water catchment purposes.

LETTERS TO THE EDITOR

(*The Editor is not responsible for the opinions of correspondents*)

Railway Operating Efficiency

4, Cowley Street, S.W.1
January 6

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Although I realise that your space is at a premium under existing conditions, Mr. F. Smith's letter in your issue of January 3 demands of me some short response. I would like to make four points in my final reply.

First, when I am told that the most important comparison of all that statistics should show is comparison with the standard or ideal, I frankly do not see how measurement with a standard or ideal, call it 100 or X as you like, but in any case it is an inestimable unknown, can be used as a statistical measurement.

Secondly, my letter was in response to Mr. Smith's own letter in THE RAILWAY GAZETTE and merely found fault with a somewhat sweeping statement of his, it did not attempt to deal with the many interesting points in his paper to the Institute of Transport, some of which I find myself in happy agreement with.

Thirdly, few of your readers will probably consider that any case put forward is really strengthened by repeated assertion.

Fourthly, it is to be regretted he does not implement my plea for better road transport statistics. In essence the whole rail and road problem is intangible, because one is attempting to co-ordinate a known with an unknown and, until good data are available, a scientific policy cannot possibly be designed.

Yours faithfully,
C. E. R. SHERRINGTON

[*This correspondence is now closed.*—ED. *R.G.*]

Coupled Wheels for Guiding

Montevideo, September, 1940

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—It is surprising to see that in referring to the above matter in a recent editorial (July 26, page 86) there reappears the "old tale" of the supposed *necessity* of the curving effort of bogies (four-wheel of course is understood) being supplemented by the flanges of the leading pair of coupled wheels.

The, at first sight impressive, references to flange-wear, accident reports, mathematical investigations, etc., as proving that the leading coupled wheels take up much of the guiding action, whilst true in respect to many locomotive designs, are rendered entirely nugatory as representing an inescapable condition, by the practical facts of the case; these facts being that locomotives can be designed, have been designed and hundreds built and running upwards of twenty years upon lines having curvature-speed conditions altogether more severe than in England, in which all tendency for the flanges of the leading coupled wheels to wear is eliminated by adequately designed bogies; which even allow such coupled wheels to have flangeless tyres.

It is this possibility which so fundamentally differentiates the four-wheel bogie from the two-wheel pony-truck with which latter (similarly with a radial axle) such beneficial results cannot be attained because of the insufficient proportion of weight which it is practicable to place upon one axle. It should be remembered that the Krauss-Helmholz and similar combinations between a single leading axle and the first coupled axle, whilst excellent—and indispensable in some circumstances—where a four-wheel bogie cannot be worked into a design, do present more opportunities for wear, etc., than does a four-wheel bogie.

Yours, etc.,
P. C. DEWHURST

Military Command of Transport

28, Colburn Avenue,
Hatch End, Middlesex
December 30

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In view of the comparatively recent order that all Army officers up to the rank of Brigadier must be able to ride a motor cycle, the following extract taken from your predecessor—*Herapath's Railway Journal*—and written as long ago as 1853 is of topical interest. Quoting *The Times* Prussian Correspondent, the extract states :—

"The *Wehr Zeitung*, or military journal, makes a singular complaint with regard to the forwarding of troops by railway, viz., that the commanding officer, when once seated, and the carriage in motion, is virtually divested of his command, from having no means of communication with the engine driver, who, moreover, is not amenable to military law. It proposes, therefore, that officers (commissioned and non-commissioned) should have opportunities afforded them of acquiring the knowledge of the art of driving a railway locomotive at the cost of the state!"

Yours faithfully,
A. S. L. ROBINSON

XUM

PUBLICATIONS RECEIVED

Practical Solution of Torsional Vibration Problems. By W. Ker Wilson. Second Edition. Vol. I. London: Chapman & Hall, 11, Henrietta Street, W.C.2. 8¾ in. × 5¾ in. 731 pp. Price 42s. net.—In 1934 two excellent books were published on the subject of torsional vibrations. During the years that have elapsed since then an enormous amount of additional information has been obtained affecting vibrations of this kind in high-speed engines and connected machinery. One of the above-mentioned books has now been republished in greatly expanded form (the first edition was reviewed in THE RAILWAY GAZETTE of May 10, 1935), having, in fact, grown into a two-volume treatise. Earlier theories in which massive elements were taken to be rigid have now been elaborated to accord more nearly with observable phenomena. Also a full account is given of such changes in practice as have been necessitated by the employment of higher and higher rotational speeds in engines. Formerly an effort was made to keep natural vibration periods outside the range covered by working impulses, but today the struggle to accomplish this has been to some extent abandoned, and vibration frequencies of a low order are the aim of much modern design. Thus under operating conditions the parts are worked at speeds well above the critical ones. It may be mentioned in passing that in designing his early impulse turbine De Laval bowed to the same necessity and deliberately made the critical whirling speed of the rotating system quite low in relation to the operating speed. The latter was anything from 20,000 to 30,000 r.p.m., depending on the size of the unit.

Mechanical World Year Book, 1941. London: Emmott & Co. Ltd., 28, Bedford Street, W.C.2. Manchester 3: 31, King Street West. 6½ in. × 4 in. 248 pp. Price 2s. net.—We welcome each new edition of this publication, having always found it a most handy and useful reference book on a wide variety of engineering subjects.

The 1941 edition, now before us, contains completely new sets of tables for all the more familiar ball and roller bearings, and new and detailed formulæ which permit of the quick ascertaining of the bearing required for different service conditions and for any speed, instead of the restricted number of speeds usually given in such tables. This feature not only makes the data compact and easy of access but also greatly aids calculation. In this issue also the various case-hardening processes are described. The selection of matter has been guided largely by wartime needs, and detailed revision of the text has kept it up to date.

Bassett-Lowke Gauge "O" Scale Model Railways. Price 6d.—We have received the latest catalogue from Bassett-Lowke Limited, of 16/20, St. Andrew's Street, Northampton, giving illustrated details of gauge "O" model railway equipment. It is bound in a handsome cover, depicting in colours a model of the L.M.S.R. Pacific *Coronation*, No. 6220.

THE SCRAP HEAP

HITLER'S UNLUCKY NUMBER

The number of the locomotive which hauled Hitler's armoured train to the eventful meeting with Mussolini at the Brenner Pass last March was stated to be E 45206. At that time Mr. George Bratley, the numerologist, published in the *Daily Express* his deductions from this, and the following notes are extracted therefrom. According to the powers of numbers, it looks as though things will work out contrary to Hitler's expectations. The alphabet has the following numerical values :—

1 2 3 4 5 6 7 8 9
A B C D E F G H I
J K L M N O P Q R
S T U V W X Y Z

To get a name number you write the figures beneath the letters and build up an inverted pyramid of figures by adding together each pair of letters until you reach a single number. The three dictators all have the same name value —2. Like this :—

HITLER
8 9 2 3 5 9
8 2 5 8 5
1 7 4 4
8 2 8
1 1
2

MUSSOLINI
4 3 1 1 6 3 9 5 9
7 4 2 7 9 3 5 5
2 6 9 7 3 8 1
8 6 7 1 2 9
5 4 8 3 2
9 3 2 5
3 5 7
8 3
2

STALIN
1 2 1 3 9 5
3 3 4 3 5
6 7 7 8
4 5 6
9 2
2

What is more, 2 is Hitler's birth date (born April 20), and also Mussolini's (born July 29). The date on which they met at the Brenner Pass, March 18, if added to Hitler's birth date equals 2. Hitler's locomotive was E 45206. As E is 5, it all adds up to 22, which indicates the coming together of the two dictators. And 2 plus 2 equals 4, a number which indicates long journeys and unexpected events. Affairs arranged under the influence of 4 usually have a different ending from what is expected. The Brenner Pass was not a good place to choose, numerically speaking. Its value is also 2. This, with the two dictators, gives 2 + 2 + 2 = 6, which has for its occult symbols "The two ways," or "A man between vice and virtue," indicating strife, entanglement, and trouble through indecision. The number 2 is classed by occultists as an evil number. It indicates trouble, contention, disaster, and death, and is often associated with assassination or a violent end."

* * *

A story about a temporary porter who extinguished three incendiary bombs with a home-made tin hat is quoted by Lord Stamp, Chairman of the L.M.S.R., in a message to the staff. An official was amazed to see the temporary porter rush towards him and exclaim, "Here they are, guv'nor. I've put them out with my home-made tin hat." The porter's only concern was that his ruined tin hat should be replaced, and this will be done.

* * *

FOGGY WEATHER

Mrs. Channel Islands Evacuee was telling her English neighbour about having spent some hours of the previous night in the family's Anderson shelter backing on to the railway. "But why?" interrupted the astonished neighbour. "What made you go into the shelter? There were no sirens, and this is a fairly safe area." "Ah," countered Mrs. Evacuee, "but what about the guns last night?" "Guns?" asked the other, mystified. "What guns?" "Why the guns that started just after it went so foggy." The neighbour thought for a moment before light dawned—the evacuees never, of course, having heard them in their native, railwayless Guernsey, had mistaken the first railway fog signals of the winter for A.A. Guns!—*From the "Manchester Guardian."*

* * *

Since it is now both easy and fashionable to blame "transport difficulties" for almost anything, from coal shortages to unobscured lights and the price of sausage rolls, surprise is expressed in British railway circles that the Italians have not managed to drag the Great Western, L.N.E.R., L.M.S.R., and Southern into their recent apologia for Taranto, Albania, Bardia, and other embarrassments.

* * *

UNANIMOUS

Did you notice that Field-Marshal von Brauchitsch in his broadcast to the Nazi troops said :—

"We are convinced that the war is already won, and that the Führer will end it in the way needed by our nation for the security of its future."

We see nothing to contradict in that.—*From "The Glasgow Herald."*

* * *

A hand-written poster of a newsvendor in London recently read :—

Italians
Trains
Tubes
Noses
} All running

From "The Daily Telegraph."

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

CANADA

C.N.R. Receipts Not up to Expectation

According to officials of the Finance Department, the Canadian National Railway system did better financially last year but not as well as was expected. In the estimates for the year the deficit on the system was expected to be $15,000,000, a reduction of $25,000,000 compared with last year. This, it is indicated, is not good enough. Now, moreover, the deficit, judging from what is being paid out on account of it, seems likely to be nearer $20,000,000. Nevertheless, that amount would be only half the 1939 shortage of $40,000,000. General freight and passenger traffic is up, but the movement of wheat, on account of the marketing conditions, is much below what had been expected considering the huge crop, but it is hoped that the movement of the balance is only deferred.

BRAZIL

Mogyana Railway

The expropriation of the Mogyana Railway, inferred as doubtful in the notes published in THE RAILWAY GAZETTE of October 18 last (p. 402), along with the Brazil Railway and its subsidiaries in July, was confirmed by a Presidential Decree dated September 2. On various occasions, and especially during the financial crisis of this company, which until recently seemed insoluble, some of the shareholders desired that the Government should take over the railway. But whether it was for this reason or because at one period part of the Mogyana shares was in the hands of the Brazil Railway, that the Government expropriation took place, is not quite clear.

As to the solution of the financial difficulties of the company, it may be recalled that in 1911, 1914, and 1927, loans of £2,500,000, £1,500,000, and £800,000 respectively, were contracted, representing a total of 70,000 contos of reis at the rate of exchange prevailing on the dates mentioned. The valuation of the pound sterling and consequent fall in local currency has transformed this total into approximately 336,000 contos necessitating the provision, for interest alone, the sum of 23,000 contos a year calculated at 80$000 (milreis) to the pound sterling. Against this, average net receipts over the last ten years have not exceeded 14,398 contos for which reason arrangements were made with creditors in 1932 and 1935 whereby yearly interest payments were reduced to 10,000 contos. These arrangements expire in 1941, when, in normal circumstances, interest liabilities would reach the sum of 23,000 contos a year on the basis of 80$000 (milreis) to the pound. An agreement has now been arrived at, however, whereby the company undertakes to redeem the sterling loans mentioned on a basis of payment of £34 10s. for every £100 of loan principal and unpaid interest due up to the date of redemption. To meet this, powers have been given to E. G. Fontes & Company to float an issue of debentures redeemable over 50 years in accordance with Brazilian law not exceeding 130,000 contos at five points below par and bearing interest of 7 per cent. E. G. Fontes & Company in turn, undertakes to place the new debenture issue and acquire the foreign loan issue which now stands at £3,637,000 on the basis of 34·5 per cent. of its par value. The consolidation and nationalisation of these foreign liabilities, however prejudicial to English holders, cannot fail to have a salutary effect on the future of the railway.

New Line from Camapuan to Andrelandia

A concession has been granted to the Brasunido Sociedade Anonyme for the construction of a metre-gauge electric railway mainly for the transport of minerals from Camapuan (ex João Ribeiro) on the Parapeba line of the Central Railway, to Andrelandia, situated on the trunk line of the Rêde Mineira de Viação. The concession also provides for port works at Angra dos Reis for the shipment of the minerals, and for electrified branch lines from Getulandia to Belém on the Central Railway, and from a convenient point on the Camapuan-Andrelandia construction to Lafayette situated on the Central Railway main line to Bello Horizonte.

Running Powers over R.M. de V.

The concessionary is authorised to make arrangements with the Rêde Mineira de Viação for the use of the section of this railway between Andrelandia and Angra dos Reis, and also for the execution of any improvements necessary thereon including its electrification. The text of any agreement made between the two parties must, however, be submitted to the Federal Government for approval within six months from the date of the granting of the concession. The concession will be valid for 90 years after which period all equipment, buildings, and rolling stock will revert to the Federal Government free of onus.

All plans relating to the new railway, its equipment, and the improvements on the Rêde Mineira de Viação, must be submitted to the Federal Government within a period of 12 months from the date of conclusion of arrangements with the Rêde Mineira de Viação; failing this, the concession will become null and void. If, for any reason, such plans are not approved no claim for indemnification will be entertained.

SOUTH AFRICA

Half Year's Railway Finances

The following figures for the first half of the current financial year, April to September, 1940, have been published by the Chief Accountant :—

	£
Revenue—	
Railways (all services)	19,586,958
Harbours (all services)	1,137,437
Steamships	238,789
Airways	15,506
Total revenue (all services)	20,978,690
Expenditure—	
Railways, working expenditure (all services)	17,220,966
Harbours, working expenditure ...	822,175
Steamships, working expenditure ...	232,449
Airways, working expenditure ...	67,728
Special appropriations—	
Betterment Fund	500,000
Deficiency in Pensions and Superannuation Funds	243,500
Renewals Fund	400,000
Writing out of capital account discount and expenses on pre-Union capital	300,000
Total expenditure (all services) ...	19,786,818
Surplus of Revenue over expenditure ...	1,191,872

EIRE

G.S.R. Annual Staff Dance

The Great Southern Railways annual staff dance was held in the Gresham Hotel on December 18. Those present included :—

Sir Walter Nugent (Chairman) and Lady Nugent, The Rt. Hon. James MacMahon (director) and Mrs. MacMahon; Dr. Lombard Murphy (director) and Miss Murphy; Mr. W. H. Morton (General Manager) and Miss Morton; Mr. P. J. Floyd (Traffic Manager) and Mrs. Floyd; Mr. W. Gordon Bradley (Law Agent) and Mrs. Bradley; Mr. G. J. Murphy (Chief Engineer); Mr. E. C. Bredin (Chief Mechanical Engineer) and Mrs. Bredin; Mr. Meadows (Stores Superintendent) and Mrs. Meadows; Mr. J. V. Doyle (Hotels Manager); Mr. A. Fraser (Chief Cashier) and Miss Fraser; Mr. Hartnell Smith (Accountant); Dr. Redmond (Medical Officer) and Mrs. Redmond; Mr. C. E. Riley (a former General Manager), and Mrs. Riley; Mr. A. W. Bretland (former Chief Engineer), and Mrs. Bretland; Mr. Veltom (Irish Traffic Manager, Great Western Railway); Mr. G. B. Howden (General Manager, Great Northern Railway) and Mrs. Howden; Mr. R. W. Sinnott (General Manager, British & Irish Steam Packet Company) and Mrs. Sinnott; Mr. and Mrs. C. D. Hewat, Mr. and Mrs. H. Hewat, Mr. and Mrs. O. Murphy, Mrs. M. Doolin, Mr. and Mrs. R. McDonald, Mr. and Mrs. C. M. Eason, Mr. and Mrs. Malcolm.

The committee consisted of :—

Mr. A. H. Walsh, Chairman; Messrs. J. Houlihan, R. Rodgers, H. McCreery, L. Howard, R. Dunne, J. P. Wood, W. Weymes, L. P. Hayes, K. A. Bunyan, C. C. Barry, A. J. Carter, S. J. Doyle, J. Lonergan, F. J. O'Hara, S. W. L. Moore, C. Ennis, J. S. Quigley, F. P. Jacob, D. J. Murphy, J. H. White, F. J. Anderson, L. Poole, H. O'Gorman, W. Toner, Misses V. Fegan, D. McCarthy, F. Cullen, N. Hand, A. Burgess, D. Brannigan.

About 500 people in all attended, and the function proved most successful.

SPAIN

Railway Stock Market Closed

An Order of the Ministry of Finance in Madrid, dated September 7, suspends until further notice any negotiation on the bourse of railway securities, whether corresponding to ordinary capital or to loans. This measure is intended to prevent speculation until the Government has decided the railway problem. Securities of the metropolitan railways and tramways are excepted from the prohibition. The principal quotations on the bourse at the date of the order were, Northern of Spain 190, and Madrid, Zaragoza & Alicante 153, for the 550 peseta share in each case.

XUM

THE CORROSION OF RAILWAY STRUCTURES

Experience in America is reviewed in a recent report here summarised

SOME considerations relating to the corrosion and protection of steel structures were reviewed in the report of a corrosion committee presented to the seventh annual convention of the American Railway Bridge and Building Association, held in Chicago in October last, and were dealt with at length in the November issue of our American contemporary *Railway Engineering & Maintenance*. Research has shown that the seven chief causes of corrosion of railway structures, in order of destructiveness, are (1) brine drippings from cars, (2) gas, smoke, and cinders emitted from locomotives, (3) coal, cinders, debris, and dirty ballast, accompanied by moisture, (4) salt water or fogs, and salt water spray, (5) dampness in unventilated places, where sunlight is excluded, (6) ordinary water, and (7) ordinary atmosphere. Brine corrosion is at its maximum on lines which convey a heavy refrigerator car traffic; it is intensified on underline bridges in or adjacent to yards and terminals and those located on curved track, because a greater volume of brine is released in the former case by the impact of cars one against another when trains are starting, and in the latter by the tilting of the cars on canted track; it is more severe on open floor bridges than on ballasted floor bridges, and affects steelwork in the area between and about 3 ft. outside the rails. Corrosion under item (2) is chiefly of overline steel structures, and results from the liberation of sulphur dioxide by the burning of coal; this gas unites with moisture in the atmosphere to form sulphurous acid, and by combination with additional oxygen forms sulphuric acid, which is strongly corrosive. The less the clearance of overline structures above the tracks, the greater the probable damage, and it is intensified if in the design of such structures pockets have been left which prevent smoke and gas from escaping; the corrosion loss is also intensified if locomotives stand or pass frequently under any particular structure. Steel bridges carrying one railway over another may suffer from the serious destructiveness of (1) and (2) in combination. Item (3) is at its worst where locomotives stand on steel structures, such as turntables, underline bridges at stations, and so on, and item (4) in the vicinity of the sea. The effect of corrosion is to reduce the thickness of the plates and sections forming the structure, and corrosion fatigue ultimately results in the development of cracks and may, apart from preventive measures, cause a failure or the breaking out of portions of the steel by overstress.

It is, of course, the use of salt with ice in refrigerator cars that results in brine drippings, but there are considerable possibilities in the use of dry ice (solid carbon dioxide) with water ice but without salt. Meantime some railways have adopted means for protecting their open floor bridges from the drippings as far as possible, by means of sloping metal troughs, or galvanised sheets, covered with special non-corrosive coatings, similarly to the way in which splash plates are used on the underside of overline steel bridges for the dispersal of locomotive exhaust. For the latter alloy steel, wrought iron, cast iron, or ingot iron, with a covering of bitumen on both sides, are used, or, alternatively, creosoted timber or concrete slabs; special coatings of paint with grit embedded may be used for the exposed parts of the structure itself. Some railways design their bridges with those parts likely to be affected by exceptional corrosion of thicker section so that a certain amount of corrosion loss may take place without any dangerous weakening of the structure. Certain lines have gone further by metallising in their entirety, with some corrosion-resisting metal such as zinc, aluminium, tin, lead, or cadmium, structures specially liable to corrosion. The steelwork is first cleaned by a sand blast, and the spraying is applied by a gun, in which oxygen and acetylene are used to melt, atomise, and spray the coating. An experiment on these lines with zinc in 1934 showed that the cost of applying the coating ranged from 50 to 65 cents per sq. ft. A steel chimney received a coating of lead on the inside and of aluminium on the outside. These metallised coatings have been successful up to date, but their life must exceed that of paint in the same proportion as their greatly increased cost if the treatment is to be economically justifiable.

Much information was given in the report as to the characteristics of different types of paint. A fundamental rule is that every coat of paint applied to either wood or metal should be more elastic than the one which preceded it. The reason is that linseed oil, the general basis of paints, does not dry as a result of the evaporation of its volatile constituents, but hardens slowly by oxidation. The finishing coat, directly exposed to the atmosphere, absorbs oxygen more rapidly than the coats beneath it, and so is the first to harden. As the hardness of the film varies directly, and its elasticity inversely, with the amount of pigment in the paint, the priming coat should contain the most pigment, and the ratio of pigment to base should decrease progressively in the body and finishing coats. It is essential that every coat shall be allowed to harden thoroughly before the next coat is applied, as if the order is reversed, when the underlying coats harden and shrink they will rupture the already hardened coat above them. In addition to drying types of paint film, there are non-drying types which retain their oily wetness through their effective life—that is, till they have weathered away—and each type has its specific uses. Drying types are never entirely waterproof; and many paint films that in the initial stages of their life are highly resistant to moisture fail to retain their moisture-proof characteristics after a short period of exposure. Chemically active pigments are used in priming coats on steel to counteract the attack on the steel of chemicals which succeed in passing through the outer paint film. Chromated pigments, such as zinc chromate, possess powerful inhibiting properties; in water solutions they form a thin transparent non-magnetic oxide film on steel which is impervious to acids or concentration of salts, even though this film is of no more than microscopic thickness. Whereas drying type paints are of maximum efficiency when applied to steel which has been thoroughly cleaned before their application—for salt or acid corrosion beneath such coats will continue to eat away the steel below and so to undermine the coating—non-drying paints are the most serviceable for application to corroded surfaces which have not been cleaned. Owing to their oily wetness, the latter surround and isolate the chemically-laden rust, and are free throughout their life to penetrate into cracks and crevices; they are self-healing and highly proof against moisture; and, applied in a single heavy coat, they are in themselves inexpensive, and elimination of the costly cleaning of surfaces before their application is a further economy. Even though such non-drying paints need more frequent renewal, the advantages named may in the end render them more economical than the drying variety.

A SIMPLE PORTABLE STANDARD OF BRIGHTNESS.—A simple form of gauge for checking low values of illumination is described in British Standard Specification BS/ARP 30. This specification has now been followed by one describing a simple portable standard of brightness, BS/ARP 52, intended to provide a rough check on the brightness of surfaces, and the nominal brightnesses specified correspond to the brightness values used for various A.R.P. purposes. The general requirements to be satisfied by such a standard are first laid down, and these are followed by a description and diagram of a typical instrument complying with these requirements. Copies may be obtained from the British Standards Institution, 28, Victoria Street, S.W.1, price 8d., post free.

ELECTRIC TRACTION SECTION

Electric Traction Experience in War

EXTREMELY interesting and valuable characteristics of railway electrified systems, particularly the low-voltage d.c. system, have been emphasised, and in at least one case just come to light, as a result of the German air raids on London and South-East England. The high standard of the restoration work undertaken by the chief electrical engineers' staffs has been one phase of the comparatively small disorganisation of traffic due to damaged electrical equipment; its quality may be estimated from the fact that, over routes covering hundreds of electrified track miles, whenever the tracks have been in a physical condition to carry trains, electric current has always been available in the conductor rails. To attribute this performance entirely to the electrical maintenance staff would be rendering them less than justice by giving them more than justice. As far as the Southern Railway is concerned, not a little of the quick reintroduction of current must have resulted from the remarkable characteristics and layout of the equipment, to which we have drawn attention in pre-war issues of our *Electric Traction Supplement* as showing evidence of having been visualised as a whole, yet in clear detail, nearly two decades ago. To these features must now be added, if not immunity from damage in time of war, at least an amazing adaptability to war damage conditions. The safety and emergency arrangements and alternative power supplies provided to maintain peacetime traffic without interruption are now proving essential. They have helped largely to show how wrong was the idea that a well-designed electrified system was appreciably more vulnerable than steam in wartime.

Naturally, this adaptability has been greater on the sections electrified within the last ten years or so, not because of any prevision of an approaching war, but because the electrical engineer responsible was quick to take advantage of progress in static electrical apparatus, especially by the universal installation of mercury-arc rectifiers in single unit substations from, and including, the electrification of the London—Brighton main line. It is common practice to expect a section of line to be fed throughout even if one substation is out of action, but the inherent overload capacity and general flexibility of the single unit substation layout have enabled feeding through to be carried out more quickly and with less drop in track capacity than would be possible with more widely spaced multiple unit substations, and in no case has damage to a substation, however serious, resulted in suspension of traffic. Moreover, the comparative smallness of a complete single unit rectifier substation gives it a greater chance of being out of the line of bombs compared with the much larger buildings housing a number of converter units. Probably the commonest causes of interference are through damaged supervisory control and high-tension feeder cables, but fortunately the rejointing of breaks is usually among the easiest of the tasks of the electrical squads. Interest in the old technical arguments as to indoor or outdoor auxiliary gear for substations may be revived by the number of times which outdoor e.h.t. switchgear and transforming equipment has been damaged severely while the main indoor equipment has gone more or less scot free. Further limitation of damage appears to have been gained in several instances by the practice of having the d.c. breakers and other l.t. switchgear in annexes separate from the main rectifier room. Finally, the value of the remote supervisory control used by the Southern must be stressed. It is true that the repair of the control cables has given much work to the maintenance staff, but all the rectifier subs are normally unattended, and by this feature alone some saving in life must have resulted. In other directions a good deal of ingenuity has been displayed in keeping the current on, as in the extemporised induced-draught arrangements evolved quickly when a power house flue was damaged. The high-water mark appears to have been reached some little time ago, when a bomb pierced the top boom of a large-span single-line bridge used almost entirely by electric suburban trains. A calculation made immediately after observation, and measurement of the deformation showed that the weakening of the structure, although it would prohibit the passage of the heavy steam locomotives for which the bridge had been originally designed, would still allow the safe carriage at reduced speed of multiple-unit trains with their comparatively light axle loads. This is an advantage of multiple-unit electric traction which has probably never been generally recognised.

Contact Wire Lubrication

DURING the last five years a decrease of more than 50 per cent. in the diameter wear of the overhead contact wire has been obtained by the Illinois Central Railroad through the use of carbon wearing strips and lubrication of the wire with graphite compound. Electrification is on the 1,500-volt d.c. system, and over the heavy-traffic section north of 69th Street, Chicago, the catenary system comprises two 3/0 88 per cent. conductivity cadmium-bronze contact wires; a 200,000 circ. mil. 19-strand hard-drawn copper auxiliary messenger; and a main messenger of 0·81 in. diameter made up of seven copper-clad steel wires surrounded by 12 hard-drawn copper wires. South of 69th Street, where traffic is not so dense, the two contact wires are 4/0, the auxiliary messenger is of 105,500 circ. mil. area made up of 19 strands of hard-drawn copper wire, and the main messenger is the same as on the northern section. The copper equivalents of the catenary system are 838,900 circ. mils. on the northern section and 898,700 circ. mils. on the southern division; taken throughout the life of the contact wire, the average conductivity over each track is considered as approximately 790,000 circ. mils. copper equivalent.

Current is collected by double-shoe pantographs. Before the Dixon's 1924 graphite compound is applied all grease and oil is cleaned off the pantograph; the surfaces are then coated with a small quantity of the graphite compound, diluted to a thin paint consistency, and allowed to dry for at least an hour. The sun is a good drier but an oven is not. The compound is diluted with naphtha or carbon tetrachloride, but to avoid the fire hazard of naphtha a mixture of 60 per cent. tetrachloride and 40 per cent. naphtha is usual. After the graphite paint coating is dry the groove in the pantograph is packed with the same compound in a paste form with a trowel, and is allowed to dry in air for at least six hours. Before returning to service another coat of graphite paint is put over the tops of the shoes and horns. When first applied, a certain amount of the compound is required to coat the wires, and after this requirement is fulfilled "topping up" of the strips with graphite compound is undertaken every 1,000 miles or so.

From a wear of over 30 mills on the vertical diameter per 100,000 pantograph passes in 1933, carbon strips and graphite lacquer reduced the wear to 23 mills in 1935, and since the application of Dixon's 1924 compound in the manner outlined above, the wear has decreased to 9 mills per 100,000 passes; the miles per wearing strip life have increased from 9,000 in 1933 to 13,500 in 1935 and to 47,000 in 1939. The multiple-unit trains range from two to 10 cars, about half of which are motor-coaches, and normally operation is with one pantograph on each motor-coach raised; the currents collected extend up to 850 amp. per pantograph, speeds range up to 65 m.p.h., and the acceleration rate up to 1·5 m.p.h.p.s.

XUM

Adhesion Weight Efficiency

A study of the utilisation of weight in double six-wheel bogie locomotives for broad-gauge lines in Spain

AFTER the decision made in 1934 to electrify on the 3,000-volt d.c. system the Madrid-Avila and Madrid-Segovia lines, the Northern Railway of Spain ordered 24 electric locomotives from the Construccionnes Devis S.A., of Valencia. The electrical portions were to be built by Sécheron, with whom the Construccionnes Devis are in close collaboration.

Careful study was made of the general arrangement of the locomotives, the relation of the bogies to one another, and the layout of the traction motors, with a view to getting the best use out of the adhesion weight. The tests stipulated in the original tender, and the maximum permissible axle load together led to the adoption of a total weight of 100 *tonnes*, with a tractive effort of 3,000 kg. at the wheel rims per axle on the one-hr. rating. At starting, the locomotive would use double the amount of current that would be needed during continuous running, or equivalent to a tractive effort of 5,000 kg. at the rims.

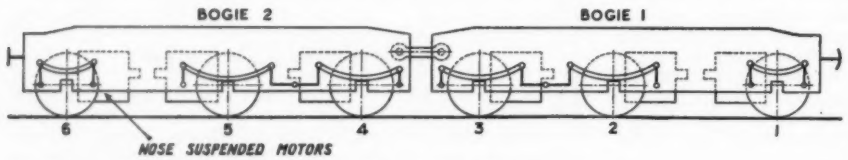
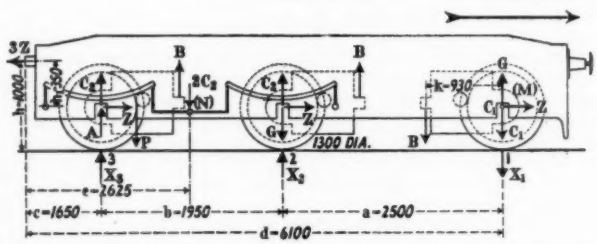


Fig. 1 (*left*): *Layout of first locomotive considered*

Fig. 2 (*below*): *Forces on one bogie of locomotive shown in Fig.* 1



For the purpose of comparison an output of 4,000 kg. per axle may be assumed. The distribution of load on the different axles varies during service and at rest. While tractive effort is being exerted an unloading effect is produced on certain axles, but others take a heavier load. In a locomotive with individual axle drive no one axle can be given a greater tractive effort than that carrying the least load; this explains why a transference of load from one axle results in a reduced tractive effort on all the others. Thus the axle loads of a Co + Co locomotive of 24,000 kg. tractive effort are reduced according to the placing of the motors and couplings by from 5 to 25 per cent. The static axle load of the new Spanish locomotives is to be about 16 *tonnes* (the maximum allowable) and if, for example, during running the transference should reach 20 per cent. the load would become 12,800 kg. This would correspond to a coefficient of adhesion equalling 0·312, a figure that is rarely reached. With this in mind, it was felt necessary to make a detailed study of the use of adhesion weight in locomotives of the Co + Co wheel arrangement, and five examples were considered, as detailed below :—

Type I.—The locomotive arrangement is the same as that of Series 7,000 (see Fig. 1). There is no rigid coupling between bogies. The static load on all axles was assumed to be the same, and it was desired to find the new values when the locomotive was exerting a tractive effort of 24,000 kg. (4,000 per axle). In the following calculations only the additional forces which come into play when the locomotive is exerting tractive effort are taken into consideration. These extra forces, which are non-existent when the locomotive is at rest, create a new balancing condition, and are :—

(1) The effort P made by the motor pinion on the gear wheel fixed to the axle.

(2) Force A in the axle bearings of the traction motors.

(3) Force C which the chassis of the bogie exerts on the axle through the suspension springs.

(4) Friction X between rail and driving wheel.

Forces P and A work in contrary directions. When the locomotive changes its direction, these forces do likewise. The relation between them is G = P − A. Forces G, C and X should be balanced.

The bogie chassis is subjected to the following forces :—

(*a*) Force B is exerted at the suspension point between the motor and the bogie chassis. It is equal and opposite to the resultant of P and A.

(*b*) Forces C from the suspension springs.

(*c*) The tractive effort, which acts on the drawbar and in the axleboxes.

To determine forces C it is sufficient to write the equation of the moments in relation to points M and N (Fig. 2), and this gives $C_1 = 658$ kg. and $C_2 = 1{,}069$ kg. The force G is equal to :—

$$\frac{4{,}000 \times 130}{2 \times 93} = 2{,}796 \text{ kg.}$$

To obtain the loading or unloading of any axle the force C, which acts through the suspension springs, must be added to the force G, which acts directly on the axle. Then for the example shown in Fig. 2 the transfers are given by :—

First Bogie

$X_1 = -G - C_1 = -2{,}796 - 658 = -3{,}454$ kg.
$X_2 = +G - C_2 = +2{,}796 - 1{,}069 = +1{,}727$ kg.
$X_3 = +G - C_2 = +2{,}796 - 1{,}069 = +1{,}727$ kg.

Second Bogie

$X_4 = -1{,}727$ kg.
$X_5 = -1{,}727$ kg.
$X_6 = +3{,}454$ kg.

Those forces preceded by the minus sign represent discharges of load, and those with a plus sign before them are overloads. The loads on the first and sixth axles can be reduced to 16,000 − 3,454 = 12,546 kg., corresponding to a coefficient of adhesion of 0·318, and can also be increased to 16,000 + 3,454 = 19,454 kg. This arrangement is scarcely satisfactory.

Type II.—This has the same motor arrangement as in the locomotives of Series 7,000. The bogies are coupled rigidly, and vertical forces can thus be transmitted (see Fig. 3). In addition to the forces considered in Type I, the coupling reaction V also acts on the bogie chassis. The presence of this other unknown value V makes necessary a new elastic equation. The two bodies are symmetrical in relation to the vertical plane passing through the coupling, and the forces working on the two bogie chassis are opposed. The two chassis therefore perform a circular movement round the centre of the coupling, which itself is rigid.

The magnitudes of the spring forces E and B may be expressed by the signs ε_1 and ε_2, and those of forces F and Z are represented by δ_1 and δ_2. The forces C exerted by the suspension springs have been divided into two components, E and F. Forces E are in equilibrium with those of B, and those classified F balance the tractive effort.

Taking into account the fact (*a*) that the extensions and

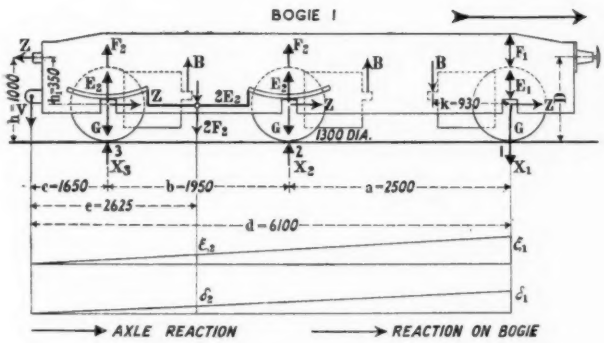


Fig. 3—Bogie arrangement and forces for proposed locomotive Type II ; the two bogies of the locomotive are rigidly coupled

compressions of the suspension springs are proportional to the distances of the springs from the coupling, and (*b*) that the force developed by a spring is in proportion to its arrow, (see Fig 3), the following equation results :—

$$E_1 \times d + B\,(d - K) - B\,(b + c + k) - B\,(c + k) + 2\,E_2 + e = 0.$$

Therefore

$$\frac{E_1}{E_2} = \frac{d}{e}$$

From these two equations the values of E_1 and E_2 are found to be :—

$$E_1 = 649 \text{ kg.} \quad E_2 = 280 \text{ kg.}$$

In the same way is given :—

$$F_1 \times d - 3\,Zh + 2\,F_2 \times e = 0$$

Whence the values of F_1 and F_2 are :—

$$F_1 = 502 \text{ kg.} \quad F_2 = 216 \text{ kg.}$$

The discharges and overloads of the various axles will then be :

First Bogie

$X_1 = -G - E_1 - F_1 = -2{,}796 - 649 - 502 = -3{,}947$ kg.

$X_2 = +G - E_2 - F_2 = +2{,}796 - 280 - 216 = +2{,}300$ kg.

$X_3 = +G - E_2 - F_2 = +2{,}796 - 280 - 216 = +2{,}300$ kg.

Second Bogie

$X_4 = -2{,}300$ kg.
$X_5 = -2{,}300$,,
$X_6 = +3{,}947$,,

This motor arrangement is thus even worse than that considered in the first case.

Motors Hung Towards Centre

Type III.—Here all the motors are hung towards the centre of the locomotive, and there is no rigid coupling between the bogies (Fig. 4). Proceeding in the same manner as in Type I one obtains :—

$$C_1 = 992 \text{ kg.} \quad C_2 = 4{,}205 \text{ kg.}$$

$$G = \frac{ZD}{2K} = 2{,}476 \text{ kg.}$$

The discharges and overloads on the different axles are :—

First Bogie

$X_1 = -G - C_1 = -2{,}476 - 992 = -3{,}468$ kg.
$X_2 = -G + C_2 = -2{,}476 + 4{,}205 = +1{,}729$ kg.
$X_3 = -G + C_2 = -2{,}476 + 4{,}205 = +1{,}729$ kg.

Second Bogie

$X_4 = -1{,}729$ kg.
$X_5 = -1{,}729$,,
$X_6 = +3{,}468$,,

The maximum transference of load is thus of the same general magnitude as in the two preceding cases.

Type IV.—All the motors are hung towards the middle of the locomotive. The coupling between the bogies is rigid and can transmit vertical forces (Fig. 5). As in the second type under consideration :—

$E_1 = 2{,}460$ kg. $\quad E_2 = 1{,}099$ kg.
$F_1 = 473$ kg. $\quad F_2 = 211$ kg.

and the following transferences of loads take place :—

First Bogie

$X_1 = -2{,}476 + 2{,}460 - 473 = -489$ kg.
$X_2 = -2{,}476 + 1{,}099 - 211 = -1{,}588$ kg.
$X_3 = -2{,}476 + 1{,}099 - 211 = -1{,}588$ kg.

Second Bogie

$X_4 = +1{,}588$ kg.
$X_5 = +1{,}588$,,
$X_6 = +489$,,

When all the motors are inclined towards the centre of the locomotive a maximum load transference of 1,588 kg. is given.

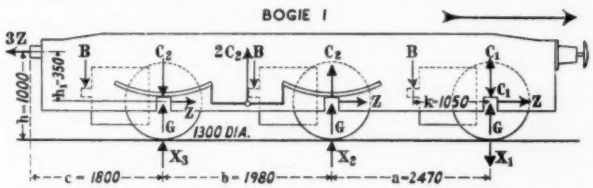


Fig. 4—Arrangement of one bogie in which all motors are hung towards the centre of the locomotive ; no rigid coupling between bogies

The loads on Nos. 2 and 3 axles can be reduced to 16,000 — 1,588 = 14,412 kg., which corresponds, with the 4,000 kg. tractive effort, to a coefficient of adhesion of 0·279.

This solution is superior to the others as regards results obtained, and can be still further improved by the use of an elastic coupling in the vertical direction.

Type V.—All the motors are inclined towards the centre of the locomotive. The coupling between the bogies is flexible in the vertical plane ; such a coupling possesses the additional advantage of deadening shock, as with a rigid coupling the shocks suffered by the bogie are transmitted from one to another in full force, but with a flexible form of coupling the shocks are partially absorbed and are transmitted to the other bogie in a modified form.

To calculate the load transferences the following method has been used. It is assumed that the two bogie chassis are

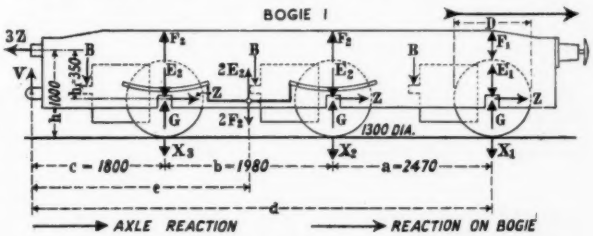


Fig. 5—Arrangement of bogie as in Fig. 4, but with rigid coupling between the two bogies

rigid beams each resting on two springs and coupled together by a spring. The twin suspension springs of the two axles adjoining each other are represented by a single spring. Each beam takes a new balancing position under the influence of working loads, and displacement of a beam can be divided into linear and rotational movements.

If u is taken to be the displacement due to the linear movement, and v equals the angle of rotation, the displacement of any point of the beam will be given by $u + sv$, in which s is the distance of the point in question from the centre of rotation.

Forces P_1, P_2, P_3, P_4 and V (see Fig. 6) have been calculated in relation to u_1, u_2, V_1, V_2; ρ represents the load needed to compress or lengthen by the amount of 1 mm. one spring or

group of springs, and α represents the relation between the flexibility of the suspension spring and that of the coupling. For the purposes of calculation $\alpha = 0{\cdot}25$. Considering the equilibrium of each of the bogies :—

First Bogie

$$P_1 + P_2 + V - 3B = 0$$
$$6{\cdot}25P_1 + 2{\cdot}79P_3 + 3Zh_2 - \Sigma Bs = 0$$

Second Bogie

$$P_3 + P_4 + V - 3B = 0$$
$$2{\cdot}79P_2 + 6{\cdot}25P_4 + 6Zh_1 - 3Zh_2 - \Sigma Bs = 0$$

Finally the following values are obtained :—

$P_1 = 1{,}804$ kg.
$P_2 = 3{,}661$,,
$P_3 = 6{,}081$,,
$P_4 = 616$,,
$V = 1{,}962$,,

The load transferences are :—

First Bogie

$X_1 = -2{,}476 + 1{,}804 = -672$ kg.
$X_2 = -2{,}476 + 1{,}831 = -645$ kg.
$X_3 = -2{,}476 + 1{,}831 = -645$ kg.

Second Bogie

$X_4 = +2{,}476 - 3{,}041 = -565$ kg.
$X_5 = +2{,}476 - 3{,}041 = -565$ kg.
$X_6 = +2{,}476 + 616 = +3{,}091$ kg.

In consequence the maximum transference is 672 kg. and for a 4,000 kg. tractive effort the coefficient of adhesion is 0·261 with 672 kg. subtracted from the static axle load.

Conclusion.—Although in the type of locomotive under consideration (Co + Co), the disturbing effect of the height of the tractive effort above the rail is to a great extent overcome by the large total dimensions, it is still very necessary to continue the study of motor layout and general arrangement. It will be seen that the slinging of all the motors towards the centre of the locomotive, and a flexible coupling able to transmit vertical efforts, gives a coefficient of utilisation of adhesion weight of 95 per cent., whereas for locomotives of Series 7,000, now in service, the coefficient is only 75·3 per cent.

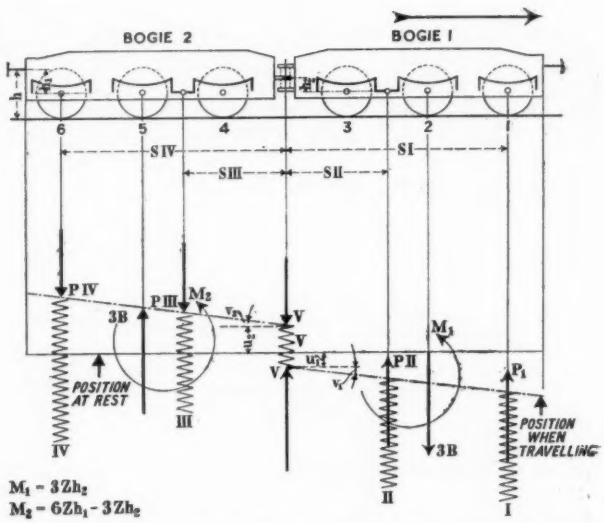


Fig. 6—Arrangement of Co + Co locomotive in which all motors are hung towards the centre, and the inter-bogie coupling is flexible in the vertical plane

Early Spanish Electrification

THE first railway electrification in Spain was carried out in 1906, when the Barcelona suburban line to Sarriá was converted to a 600/1,200-volt d.c. system. About 1910 the Linares-Almeria (Sur de España) company electrified a 30-km. section between Gador and Nacimiento, at 5,500 volts 3-phase 25 cycles, for the transport, over heavy grades, of iron ore to Almeria. Then the 58 km. of the Pamplona—Aoiz—Sanguesa narrow-gauge railway were converted to electric traction at 6,000 volts single-phase 25 cycles, and soon after the San Sebastian—Irun line was electrified, but with d.c. at 600 volts. No further development occurred until 1925, when the Northern of Spain company inaugurated its major scheme over the Pajares incline at 3,000 volts d.c., and subsequently converted to 1,500-volt d.c. electric traction the Barcelona—Manresa line, inaugurated in 1928, and the Irun—Alsasua section at 1,500 volts d.c. in 1929. These dates were given by Señor Mario Viani, Assistant General Manager of the Northern of Spain Railway, in the first of three lectures to the students of the School of Industrial Engineers in Madrid, and published in our contemporary *Ferrocarriles y Tranvias*. In the case of the Pajares incline, the electrification at 3,000 volts d.c. was decided upon to deal with growing mineral traffic over a difficult mountain section, in which the line formed the principal outlet to the interior for the production of the Asturias coalfield. The alternative solution—double-tracking—would have involved a prohibitive outlay in capital and time, on a line of which no less than 60 per cent. is in tunnel, and heavier steam locomotives would have increased the difficulties, already great, of ventilation, without reducing the time lost while assisting engines returned light to the foot of the incline. That the electrification was justified is amply proved by the fact that today a regular service can be operated over the section between Ujo and Busdongo, of 12,000 gross tons a day, that is, four times the maximum possible before the conversion, together with a reduction in working cost and an absolute regularity in train running.

The electrification of the section between Barcelona and Manresa, inaugurated in 1928 (and later continued to San Juan) was rendered necessary by the increase in passenger traffic which occurred over all the Catalonian railways, together with the growth of competitive road transport. Incidentally, the 64-km. line to Manresa had already been double-tracked some time before, but this measure proved insufficient to meet growing traffic demands, and electrification was undertaken. On the Irun—Alsasua section of the Northern main line between the frontier and Madrid, similar reasons existed in favour of electrification, both local and international traffic having increased and competition become more acute. The double track electrified section, 103 km. in length, was inaugurated in 1929, the system adopted being identical with that of the Barcelona—Manresa line. The Northern is continuing with its plans for the electrification of its principal main lines; progress on the Madrid—Avila—Segovia section was abruptly interrupted at the outbreak of the civil war, but work was resumed early in the year 1940 and it is expected that at least one branch of the section may be inaugurated in 1941.

The Spanish Government, now interested financially in the fortunes of the railways, is encouraging the further development of electric traction, and under an Order dated March 2, 1940, of the Ministry of Public Works, a commission was appointed for the planning and supervision of schemes for the electrification of broad- and narrow-gauge railways throughout the country. From the point of view of operating difficulties over mountainous lines, there are certainly many routes in Spain where electrification would be of benefit.

PAULISTA ELECTRIFICATION.—Recent equipment installed on the main-line electrified section of the Paulista Railway, in Brazil, converted to 3,000-volt d.c. some years ago, includes an additional substation of 3,000 kW. capacity and four sectionalising huts. An increase in traffic has been experienced over this division, and four American-built high-power locomotives were added to the stock last year; they were described in our Electric Traction Supplement for January 5, 1940.

STRIKING PERFORMANCE OF NEW IRISH 4-6-0 LOCOMOTIVE

The introduction of a new type of express locomotive on the Great Southern Railways has enabled heavier trains to be hauled at higher average speeds

JOURNEYS with the recently-accelerated Dublin—Cork mail trains of the Great Southern Railways of Eire show that the new 3-cylinder 4-6-0 locomotives of the "800" class* have revolutionised the operation of this main line. The hardest task on the route is the northbound start out of Cork, where the severity of the gradients—one mile at 1 in 78·64 from the platform end, 300 yd. at 1 in 714, and then 1·9 miles continuously at 1 in 60—with the wet ¾-mile of tunnel entered immediately on starting, have made necessary the use of as many as three locomotives on trains of less than 400 tons weight to obviate any chance of stalling. On a recent occasion, however, No. 800 *Maeve*, had a load of 450 tons behind the tender and no assistance was needed. Up the 1 in 78·64 grade through the tunnel speed rose to 22 m.p.h., the 1 in 714 strip brought a slight acceleration to 23¾ m.p.h., and the succeeding 1·9 miles at 1 in 60 were climbed at a steady 22 m.p.h. Cut-off was about 50 per cent., with the regulator practically full open. The summit of the bank, marked by milepost 162, was passed in 9 min. 39 sec., an excellent time over 3·3 miles of such heavy grading.

Over the easier gradients to Dublin 20 to 25 per cent. cut-off was sufficient to keep the fast point-to-point times of this train. In restarting from Mallow, up a continuous gradient of 1 in 151 extending for 4¼ miles, speed rose to 38½ m.p.h. On the final run of 50·9 miles from Maryborough to Dublin, which has an undulating profile, the falling gradients at the start were neutralised by a 40 m.p.h. permanent way restriction through Portarlington, just when speed had been attained, despite which No. 800 made the run at an average speed of 60 m.p.h. start to stop, in 50½ min., so regaining 7½ min. of time dropped *en route* through exceptionally heavy station work. On this section 20 per cent. cut-off was used throughout, save in recovering from the Portarlington slack and in climbing the 4-mile bank at 1 in 180 to Kildare, which required 25 per cent., and in the latter case resulted in no greater fall in speed than from 62½ to 50 m.p.h. On the gently falling stretch north of Newbridge 21 miles were covered at an average of 72·2 m.p.h., with a maximum of 79 m.p.h.

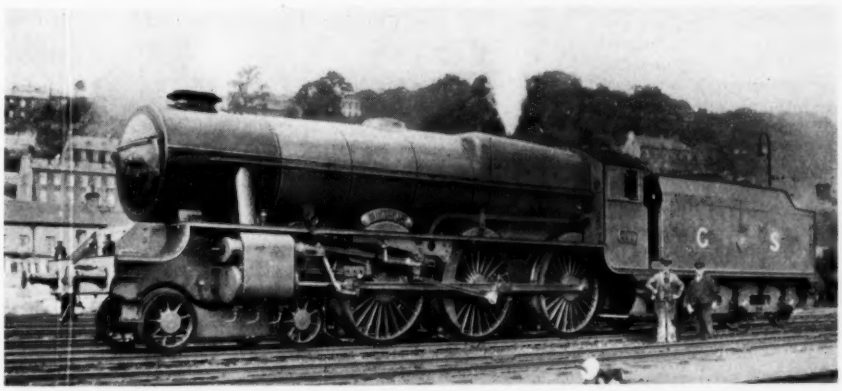
On the 7.15 a.m. from Kingsbridge to Cork some smart running was made with a lighter load. On each of the sharply-booked station-to-station runs a minute or so was gained; the 40 min. schedule for the 37·6 miles from Limerick Junction to Mallow was cut by 2¼ min., with a maximum speed of 82 m.p.h. This appeared on the footplate to be well within the maximum capabilities of the engine, which has attained 92 m.p.h. on a test run. Exceptional work was performed in starting from Mallow towards Cork with a 305-ton train. After half-a-mile falling to the Blackwater viaduct there is a bank 6½ miles long, inclined for 1⅓ miles at 1 in 125, and for the remainder at 1 in 140 continuously. Working on 25 per cent. cut-off No. 800 attained 39 m.p.h. at the viaduct, and then accelerated all the way up the —bank, breasting the summit, 7·0 miles from the start, at 52 m.p.h. in the excellent time of 9 min. 56 sec. With a maximum of 77 m.p.h. Rathpeacon box, 17 miles, was passed in 18 min. 35 sec., and the 20·4 miles from Mallow to Cork were run in 24 min. start-to-stop, a gain of 3 min. on schedule.

A tribute to the efficiency of the front end arrangements on these locomotives was the small quantity of fine texture of the ash needing to be removed from the smokebox at the end of each 165-mile journey.

A series of runs behind No. 800, *Maeve*, from Dublin to Cork by the 7.15 a.m. Down Mail, described in the May, 1940, instalment of "British Locomotive Practice and Performance" in our associated monthly *The Railway Magazine*, show that such performances as the foregoing are typical of the day-to-day working of these remarkable engines. On one down run the late Driver Mark Foley took a train of 338 tons tare and 355 tons gross from Dublin to Kildare, 30·0 miles, in 34 min. 30 sec., 5½ min. less than schedule.

Attaining 26½ m.p.h. on the ½-mile at 1 in 117 and mile at 1 in 84 from the start to Inchicore, and further accelerating up more than 2 miles at 1 in 100-138-169 to 41 m.p.h. by Clondalkin, he passed the latter station, 4·4 miles, in 8 min. 37 sec. With loads varying from 270 to 320 tons, the times on five different trips over the 20·9 miles from Kildare to Maryborough (schedule 23 min.) ranged from 22 min. 27 sec. to 21 min. 27 sec. start to stop; the quickest start-to-stop time over the next 15·7 miles, to Ballybrophy (schedule 19 min.), was 16 min. 47 sec., with a maximum of 72 m.p.h., and a minimum, with 305 tons, of 60 m.p.h. up 2¾ miles at 1 in 128 to milepost 65.

For the 19·9 miles from Ballybrophy to Thurles, allowed 23 min., the actual times on five runs ranged from 21 min. 4 sec. to 22 min. 5 sec. start to stop, with loads varying from 255 to 305 tons, and maximum speeds of 70 to 75 m.p.h. The allowance of 23 min. for the ensuing length to Limerick Junction nominally includes the stopping and setting back into that curiously planned station, leaving the very sharp allowance of 21 min. for the 20·5 miles from



Two views of the new 3-cylinder 4-6-0 locomotive, No. 800, "Maeve," Great Southern Railways

* An illustrated description of the new engine appeared in THE RAILWAY GAZETTE of April 14, 1939 (p. 619)

Thurles to the west end of Limerick Junction station; the actual time taken was in no case more than 21 min. 19 sec., and on two runs was as little as 20 min. 10 sec., Grange, 17·5 miles from the Thurles start, being passed in 16 min. 35 sec., and 16 min. 47 sec. Maximum speeds here ranged from 74 to 79 m.p.h. On two of the journeys beyond Limerick Junction *Maeve* made some fast running, with start-to-stop times of 37 min. 55 sec. and 37 min. 48 sec. for the 37·6 miles on to Mallow, the gross loads being 255 and 305 tons; on the first the 18·7 miles from Emly to Ballycoskerry were covered in 15 min. 27 sec., at an average of 70·3 m.p.h. Mr. E. C. Bredin, the Chief Mechanical Engineer, Great Southern Railways, is to be congratulated on the exceptional competence which is thus being displayed in the performance of his new design, as these records show.

TEMPORARY SIGNAL BOXES ON THE L.S.W.R.

Some notes on a method of handling special heavy traffic, and on the L.S.W.R. working of the Sykes lock-and-block on the "normally clear" principle

WE are indebted to the Rev. H. M. Marshall for the photograph reproduced of a temporary signal box erected by the L.S.W.R. at Monxton, between Andover and Grately, near where the Ludgershall line now diverges. In sending this picture he writes: "In 1898, when there was a review held on Salisbury Plain, Monxton box was opened to shorten the block between Andover Junction and Grately. The signalman in charge told me that on the review day, when trains were running at intervals of a few minutes, Mr. G. T. White, then Superintendent of the Line, L.S.W.R., got out of a train which was being held, and ordered the signalman to pull off the signals and pass him through to the next section—a most reprehensible action. The signalman, I presume, had to report what had happened."

The L.S.W.R. often installed temporary block posts for handling special heavy traffic, and, on the occasion of Queen Victoria's Diamond Jubilee in 1897, when there was heavy traffic to the Naval Review at Spithead and other festivities, many were brought into use on the main line to shorten the block sections. Sykes lock-and-block was already in use, and a special arrangement of instruments and locking was fitted in these and some other boxes and became known as Jubilee locking. Every box had distant, home, starting, and advance signals. As soon as a train had actuated the electric treadle ahead of his starting signal, and provided both that signal and the home signal had been put back to danger, the signalman could "plunge" again on his accepting instrument to free the signal box in the rear for another train to approach. If the first train, however, was itself held at the advance signal the home signal stood locked but could be pulled for the second train to begin to move directly the advance signal was lowered for the first one to move. That signal also had a treadle, and the starting signal stood locked, as usual, until it was actuated and the advance signal restored to danger. This locking was intended to secure the maximum safety compatible with the desired freedom of movement.

The L.S.W.R. worked the Sykes lock-and-block in the same manner as the Preece block telegraph, that is, on the "normally clear" principle, except where there were special reasons why this could not be done. The signalman "plunged" again, freeing the box in rear, immediately after the passing of a train, giving at the same time what was called the "all clear" signal of three consecutive beats. There was no "is line clear?" signal in the L.S.W.R. block, as the line was regarded as being normally clear. The first bell signal relating to a train was called the "warning" signal, and what other lines called "train entering section" was known as "departure." At places where it was not convenient to give "all clear" directly a train passed "train out of section" (2 pause 1) was given and "all clear" sent, if the next train could be allowed to approach, when its "warning" signal was received, the Sykes instrument not being "plunged"—or the Preece block not being cleared—until then. At some signal boxes in busy places, such as Vauxhall West, Loco junction, Queen's Road East and West, Clapham Junction East and South, and Clapham Cutting, the signals were pulled off again immediately "all clear" was received and were therefore normally "off." The signalling and bell ringing were very simple, most bell signals being merely acknowledged by one beat, and very different from the methods in vogue on other lines. The L.S.W.R. block regulations remained distinct from the well-known Railway Clearing House rules until the line was merged into the Southern Railway group when, in due course, standardisation as between the various lines had to be arranged. The result has been, incidentally, that where the Preece instruments remain in use they are now worked in a manner never intended by their inventor, W. H. Preece, for many years Chief Engineer to the Post Office, and the electrical disc, or reply, indicator mounted above the electric semaphore block indicator and worked by the bell movement when "acknowledgment" (one beat) was received, can no longer be used. Preece's instruments were the only ones to possess this reply feature ever used in England. The 3-position standard block instruments are gradually superseding the Preece, Tyer, Harper, Walker, and other types of instrument met with on the Southern Railway.

Monxton temporary signal box, L.S.W.R., in 1898

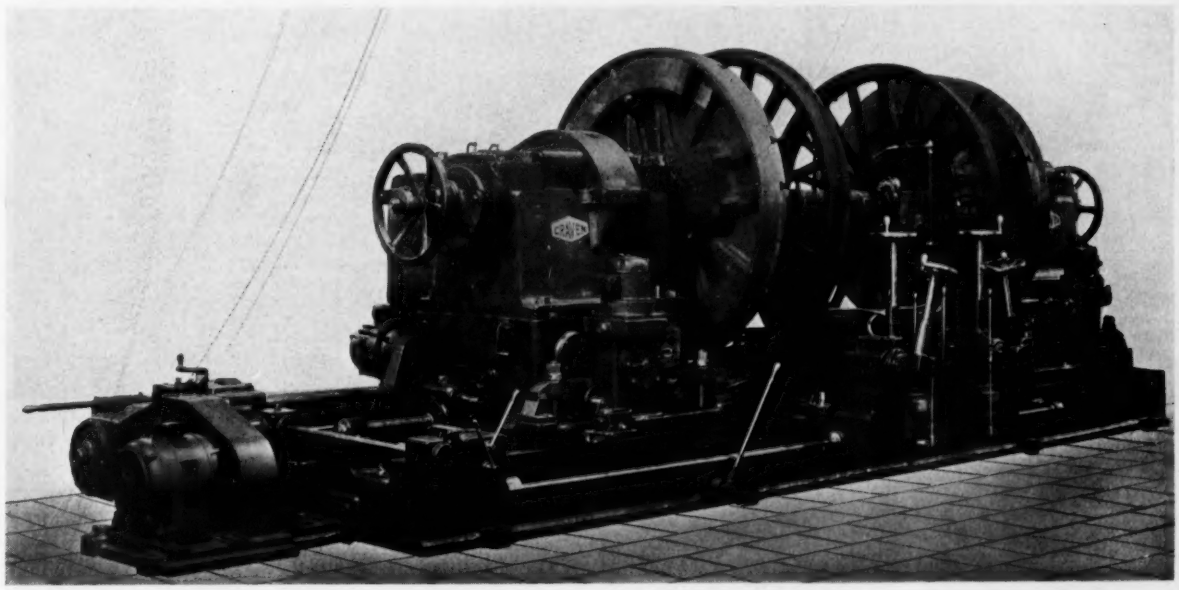
B.E.N. FOOT-OPERATED AIR VALVES.—B.E.N. Patents Limited, of High Wycombe, has produced a foot-operated air valve designed for floor mounting which can be used to control compressed-air operated machines or cylinders requiring a straightforward "on" and "off" control. An alternative model provides "on" and "off" control with a free exhaust when in the closed position, and, amongst other things, is suitable for actuating single-acting cylinders requiring immediate exhaust after a power stroke. Both models combine instant control with minimum effort.

MAINTENANCE OF LOCOMOTIVE AXLE JOURNALS

A new Craven locomotive axle inside journal re-turning and burnishing lathe

THE machine shown in the accompanying illustration has been specially designed for re-turning or burnishing simultaneously both the inside journals of locomotive crank and straight axles, with wheels mounted for the 4 in.-8½ in. gauge, and will accommodate engine wheels, with or without overhung crank pins, after the Walschaerts valve levers have been removed. It is of the double driving headstock type with faceplates having adjustable balance weights, eliminating driving torsion through the axle and facilitating the balancing of the wheel-sets. Lighthouse-type rests are fitted on auxiliary beds between the engine wheels for re-turning the inside journals, with operating handles placed in convenient positions for the operator. The lathe admits locomotive wheels up to 6 ft. 6 in. diameter on tread when mounted on axles up to 5 ft. 8 in. long between centres, with journals ranging from 4⅞ in. diameter × 10 in. long, up to 11 in. diameter × 12 in. long, and is capable of re-turning the inside axle journals and facing the adjacent bosses of mounted wheels.

Each faceplate is fitted with two drivers, and is arranged at the back for and provided with weights to balance the wheel sets, easily adjusted by hand and readily set from the front through circular rack and pinions, with bolts for locking in position. The balance weights have a range of from 770 lb. downwards for each wheel. Two saddles, mounted on auxiliary beds between the wheels, are each fitted with a transverse slide, with hand adjustment, and with reversible longitudinal feed motion to the bottom slide for turning the journals, with hand adjustment, and transverse feed motion to the top slides for facing adjacent bosses of the wheels. Each top slide is fitted with a narrow reversible tool rest, with stirrup tool holders. Adjustable automatic stops are fitted to the longitudinal feed traverses.



Craven locomotive inside journal re-turning and burnishing lathe

The bed is of box section with highly densened surfaces, planed on top and prepared for the reception of headstocks and saddles. The driving headstocks are box-section castings, fitted to the bed, along which they are adjustable by hand and power, through adjustable slipping clutches, with a motor-driven quick locking device operating on both sides of each headstock; the latter are fitted with a large diameter close-grained cast-iron hollow spindle, mounted in parallel capped bearings with gun-metal steps. The faceplate is bolted direct to the flanged end of the spindle; a ball thrust washer takes the end pressure. The headstock traverse motors are horizontal flange mounted, giving an output of 3 h.p. at 1,400 r.p.m., and the headstock lock motors are vertical flange mounted, developing 1½ h.p. at 1,400 r.p.m. The spindles are driven by inverted tooth chains from the main driving shaft at the back of the machine. A jack shaft is arranged in each headstock which provides adjustment for both the vertical and horizontal chains which are enclosed. Each spindle is fitted with a sliding steel barrel, carrying the centre, adjustable through screw and nut by a large hand-wheel, with locking device.

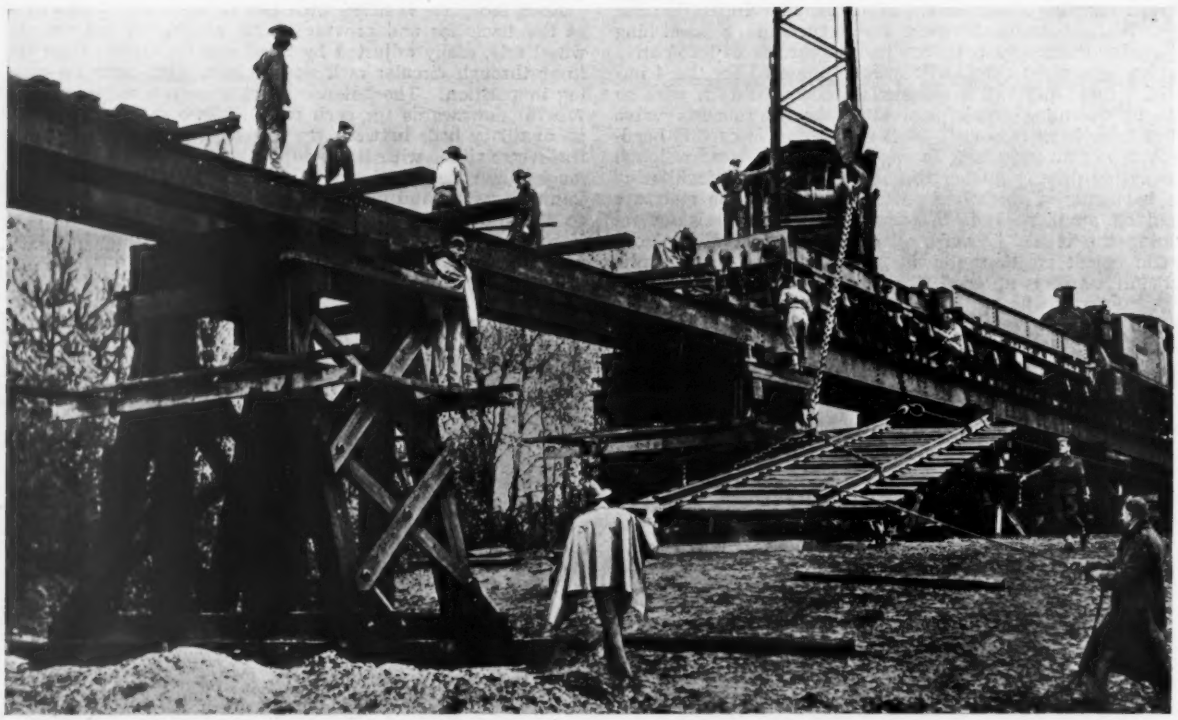
The feed motion is driven from a shaft on the left-hand headstock, through a four-speed feed gear box and slipping clutch, to a shaft at the front of the bed, with separate reversible feed gearing on each saddle. The drive is by constant-speed 10 h.p. motor through multiple vee belts and six-speed change gear box, to a driving shaft at the rear of the lathe, with spur, spiral and worm reduction gear to each headstock. A friction clutch for starting and a brake for stopping is actuated by a lever near the operator's working position.

Two double roller burnishers are provided, each consisting of a cast-steel holder, forked at the end to carry the two burnishing rollers, which are of the off-set type arranged on one side of the holder, mounted on hardened pins and rotating on double ball bearings. The necessary pressure is applied to the rollers by transverse hand adjustment of the tool rests. The holders are secured to the tool rest by the stirrup clamps and screws.

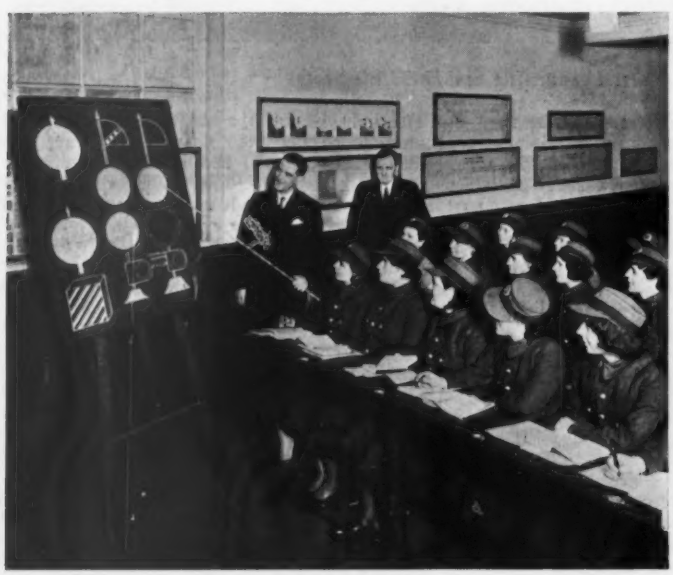
A rotary pump, with supply tank, piping and connections is provided, to ensure a continuous and ample supply of cutting lubricant to the axle journals. Special attention has been paid to the lubrication of all working parts, and is carried out by means of " one-shot " pumps. Where it is not practicable to lubricate by this system, oiling nipples are fitted for use with an oil gun, provided with the machine. The gears in the change-speed boxes rotate in an oil bath.

XUM

British Railways and the War—52



Railway construction and maintenance group of the Australian Imperial Force at work in a training camp in southern England. They are seen removing rails and sleepers in order to relay the girder span



More than 350 women are now working as porters on the London Transport railways, and the training school at Lambeth is at present working to capacity training more women. The left-hand view shows a signalling class in progress, and that on the right a demonstration with the aid of a model track

RAILWAY NEWS SECTION

PERSONAL

Mr. A. Duncan, Agent & General Manager, Bengal-Nagpur Railway, has been elected President of the Indian Railway Conference Association for the year 1941-42.

L.M.S.R. STAFF CHANGES

Mr. H. Selvester, Staff Inspector, Office of Superintendent of Organisation & Staff, Chief Commercial & Chief Operating Managers' Office, Watford, to be Goods Agent, Soho, *vice* Mr. S. Jones.

Mr. B. R. Hill, Stationmaster, Bletchley, to be Stationmaster, Broad Street; also in charge of Wilson Street parcels depot and Shoreditch, *vice* Mr. A. Chandler.

We regret to record the death, on December 19, the day after his retirement, of M. Kyösti Kallio, President of Finland since 1937. M. Kallio was born in 1873 and had a distinguished political career. Among the many Cabinet appointments he held was that of Minister of Communications in 1925.

Dr. Vilho Annala has been appointed Minister of Communications & Public Works in the new Finnish Cabinet.

Mr. Ronald Leslie, who was General Manager of the railway from 1926 to 1936, has been elected a Director of the Central Argentine Railway. He will relinquish his present office of London Manager & Secretary on the arrival from Buenos Aires of Mr. A. S. Matthews, who will take over the position of Secretary of the company.

Mr. [illegible]ais Esselen has been appoint[illegible] Commissioner, South African Railways & Harbours Board, in succession to Mr. Albert Kuit, who retired on December 31. Mr. Esselen, who took office on January 1, is probably one of the best known men in the Union. He served with General Botha and General Smuts throughout the South African War, and when the Provinces of the Union were granted self-government in 1907 he was General Botha's right-hand man. When Union was established in 1910, he became chief organiser of the political following led by General Smuts, and has always been a tower of strength behind the party organisation. He became chief organising secretary to the United Party in the days of fusion, and it was due largely to his energy and organisation that the party was so successful in the 1938 general election.

Mr. John Montague Eddy, who as recorded in our issue of December 13, has been appointed Chairman of the Buenos Ayres Great Southern Railway and Buenos Ayres Western Railway, began his railway career with the London & North Western Railway in 1898. After a course of training he became Assistant Traffic Superintendent, Lancaster Division. In 1904 he was appointed Assistant Rolling-Stock Superintendent, in 1911 promoted to the position of Rolling-Stock Superintendent, and became Mineral Traffic Manager the next year. His appointment as Assistant General Manager, Buenos Ayres Great Southern Railway, came in 1915. Shortly afterwards he held the position of Acting General Manager for some time, and was confirmed as General Manager in 1919. He held this position until his retirement in January, 1930, when he joined the boards of the Buenos Ayres Great Southern Railway and Buenos Ayres Western Railway. Mr. Eddy thus spent a period exceeding 10 years in administrative control of the largest system in South America. During his term of office there were great developments in Argentina, and these have been reflected in the progress made by the railways. In 1919, when Mr. Eddy assumed control, the Buenos Ayres Great Southern Railway comprised 3,814 miles of line, of which the gross receipts were £7,332,289, and the expenditure £5,715,937. During the last year of his general managership, 1929, the mileage was 4,736, the receipts were £13,066,789, and the expenditure £8,754,466. The operating ratio over the period improved from 77·96 to 67 per cent. In connection with the visit of the then Prince of Wales to South America, Mr. Eddy was in 1926 appointed a Commander of the Order of the British Empire. In 1928 he became a member of the Local Committee of the Buenos Ayres Western Railway. Mr. Eddy is also a Director of the Buenos Ayres & Pacific Railway and the Bank of London & South America.

Mr. John Montague Eddy, C.B.E.
Appointed Chairman, Buenos Ayres Great Southern and Western Railway Companies

We regret to record the death of Mr. W. J. Bendall, a Director of the Prince of Wales Dry Dock Co. (Swansea) Ltd. Mr. Bendall, who was 82 years of age, served his apprenticeship in the Marine Department of the Great Western Railway at New Milford. When the Prince of Wales dry dock was opened in April, 1899, he became Manager, and held this position until his retirement in 1924.

Mr. F. J. Gemmell Smith, Publicity Representative, London, Canadian National Railways, has been promoted Captain. He is attached to the Royal Engineers Railway Training Centre.

We regret to record the death, on December 6, in Montreal, of Mr. Anthony Douglas MacTier, former Vice-President in charge of Eastern Lines of the Canadian Pacific Railway. Mr. MacTier, who was in his 74th year, was born at Blairgowrie, Perthshire, and was educated at Cargilfield, Edinburgh, and Sedbergh School, Yorkshire. He went to Canada in 1886 when 19 years old. In the next year he became a clerk in the offices of the General Baggage Agent of the C.P.R., and then was stenographer to the General Superintendent. In 1889 he became assistant to the Superintendent of the Sleeping & Dining Car Department for two years, after which for five years he served as tracer in the Car Service and later in the Stores and Fuel Departments. He became General Baggage Agent in 1896, then General Fuel Agent, and in

1907 was promoted to be Assistant to the Vice-President. In January, 1913, he was appointed General Manager of Eastern Lines, with headquarters in Montreal and when the position of Vice-President in charge of Eastern Lines was created in October, 1918, Mr. MacTier was the first occupant of the post. This he retained until he retired in 1932 with 45 years' service. On the occasion of his retirement under the age limit, Mr. MacTier was paid a remarkable tribute by 450 C.P.R. officials at a private luncheon at which the Chairman & President, Sir Edward Beatty, spoke of Mr. MacTier's "fruitful and distinguished service to the institution and to the country." For 31 years, Sir Edward said, he had been in close association with Mr. MacTier, and, despite all exigencies of official relations, he had retained a very deep appreciation of Mr. MacTier's ability, as well as of his personal friendship.

We regret to record the death on December 13 of Mr. Abraham Thomas James, K.C. Mr. Thomas has been Chairman of the South Wales Traffic Commissioners since 1931. In 1936 he also became Chairman for the South Wales special areas under the Special Areas Reconstruction Act.

NEW YEAR HONOURS

In addition to those recorded last week, the following were included in the New Year Honours List:—

C.V.O.

Mr. Cornelius James Selway, C.B.E., Passenger Manager, Southern Area, London & North Eastern Railway, 1923-1940.

M.V.O., Fifth Class

Mr. Hubert Christopher Randolph Calver, Stationmaster, Liverpool Street, London & North Eastern Railway, 1930-1940.

O.B.E.

Mr. Ronald Orr Campbell Thomson, M.C., A.M.Inst.C.E., Executive Engineer, Reconstruction, North Western Railway, Quetta.

Medal of the Civil Division of the O.B.E.

Mr. John Donald, Stationmaster, London & North Eastern Railway, Portgordon, Banff.

Sir Charles Blair Gordon has left estate in England valued at £112. Sir Charles, whose death we recorded in our issue of August 4, 1939, was President of the Bank of Montreal, and a Director and Member of the Executive Committee of the Canadian Pacific Railway. Among others he held directorships of the Canadian Pacific Express and the American Locomotive Company.

Mr. Owen Glynne Roberts, who as announced in our issue of January 3, has retired from the position of Secretary to the London Midland & Scottish Railway Company and Assistant to the President, is the son of the late Mr. Owen Roberts, J.P., of Holyhead, Anglesey, and was born on January 15, 1880. He was educated at Park School, Holyhead, and entered the service of the London & North Western Railway as a junior clerk in 1896. Two years later he was transferred to the District Traffic Superintendent's Office at Chester, and in January, 1900, became Staff & Confidential Clerk to the Irish Traffic Manager. In 1902 he was appointed Outdoor Clerk in the Outdoor Goods Manager's Office at Manchester, and was made an Outdoor Assistant in 1908. Mr. Glynne Roberts went to Euston in 1911, and, after serving three years on the Chief Outdoor Goods Manager's staff, was appointed Chief Staff Clerk to the Chief Goods Manager. In October, 1917, he became Assistant Head of Staff Department in the General Manager's Office, and was re-transferred to the Chief Goods Manager's Office as Chief Clerk in February, 1918. He was appointed Chief Clerk to the General Manager in August, 1920, Indoor Assistant to the General Manager in 1922, and Assistant to the General Manager in January, 1923, when the amalgamation of the railways took place. In 1927, when the L.M.S.R. adopted the Executive Committee form of management, Mr. Glynne Roberts was appointed Assistant to the President. He became Secretary to the company in 1929, also retaining his post of Assistant to the President. Mr. Glynne Roberts was also Secretary of the Dundalk, Newry, & Greenore Railway Company and the West London Extension Railway; a Director of the Crosville Motor Services Limited, and a Fellow of the Chartered Institute of Secretaries. He received the O.B.E. for railway services during the last war and the C.B.E. to commemorate the centenary of opening of the London & Birmingham Railway in 1938.

Elliott] [& Fry

Mr. O. Glynne Roberts, C.B.E.

Who has retired from the positions of Secretary, London Midland & Scottish Railway Company, Assistant to the President, and Secretary, Executive Committee

---

At a meeting at the Irish Railway Clearing House, Kildare Street, Dublin, on December 17, 1940, Mr. S. C. Little, Secretary & General Manager of the Sligo, Leitrim & Northern Counties Railway, was appointed Chairman of the Traffic Officers' Committee for the year 1941.

We regret to record the death, on December 16, of Professor Henry John Spooner at the age of 84. Professor Spooner was head of the School of Engineering, Regent Street Polytechnic, from 1886 until 1922. He also practised as a consulting engineer and took out patents relating to steam and internal-combustion engines and the preparation of peat for use as fuel.

We regret to record the death on December 15 of Sir David Richard Llewellyn, at the age of 61. Sir David was Chairman of John Lysaght Limited, and was also a director of Guest, Keen & Nettlefolds Limited, Guest Keen Baldwins Iron & Steel Co. Ltd., and of many other industrial and commercial companies.

M. Celio has been appointed Head of the Department of Posts & Railways in the 1941 Swiss Federal Council.

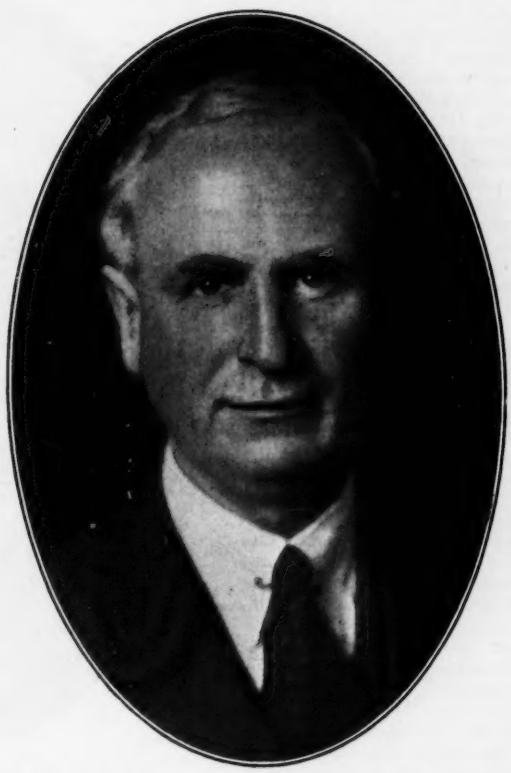
Mr. Charles H. Morrison, Signal Engineer, New York, New Haven & Hartford Railroad, has retired on account of ill-health, and is being succeeded by Mr. Waldo F. Follett, Assistant Signal Engineer.

At the meeting of the board of directors of the Baltimore & Ohio Railroad Company held on November 27, Mr. Daniel Willard was re-elected President of the company. As on previous occasions, the board of directors declined to accept Mr. Willard's resignation as President. This was the first meeting of the board since the annual meeting of stockholders on November 18 when the entire board was re-elected.

Mr. John Ballantyne, O.B.E., Chief Officer for Scotland, London Midland & Scottish Railway, who, as recorded in our January 3 issue, is to retire on March 31, began his railway career as a junior clerk in the clerical department of the Caledonian Railway at Beattock station in 1892. After five years' training at various stations he was appointed Relieving Agent, Chief Goods Manager's Office, in August, 1897. In 1911 he was selected as Chief of the Accounts Office, Glasgow, one of the largest offices of the Caledonian Railway, and subsequently, after being Chief Clerk to the Outdoor Goods Manager and Assistant to the Chief Goods Manager, he was promoted to be Goods Manager in 1918. When the Caledonian became absorbed into the L.M.S.R. group in 1923, Mr. Ballantyne was appointed General Superintendent, Northern Division, L.M.S.R. In 1924 he became Goods Manager, Northern Division, and was promoted to be Chief Goods Manager, Euston, in 1927. He returned to Glasgow in July, 1932, when he was appointed to the newly-created post of Chief Officer for Scotland. His wide knowledge of commercial personalities and methods in Scotland admirably fitted Mr. Ballantyne for this appointment, and he has rendered very valuable service in developing contact with commercial interests and the travelling public. As Chief Officer for Scotland he has been responsible for the operation of L.M.S.R. trains, road vehicles, and ships, and under his control much has been achieved to co-ordinate all railway resources to ensure an efficient railway service.

Lafayette]

Mr. John Ballantyne, O.B.E.
Chief Officer for Scotland, L.M.S.R., 1932–1941



[Glasgow

Major Malcolm S. Speir, M.C.
Appointed Chief Officer for Scotland L.M.S.R.

Major Malcolm S. Speir, M.C., J.P., who, as recorded in our issue of January 3, has been appointed Chief Officer for Scotland, London Midland & Scottish Railway, is a son of the late Mr. Robert Thomas Napier Speir, of Culdees Castle, Perthshire, and a cousin of the late Lord Blythswood. He was born in 1887, and began his railway career with the Midland Railway in 1905. He passed through the various grades in the service, being Assistant Traffic Inspector at Bedford and London, and later a Headquarters Inspector in connection with the train working at Derby. In 1910, Major Speir went to America to study railway working there, and on his return entered the Caledonian Railway service, where he was connected with outdoor working under the General Superintendent, and was ultimately appointed Outdoor Assistant General Superintendent in July, 1912. On the outbreak of the 1914-1919 war, Major Speir volunteered for service, and went to France in September, 1914, as a Lieutenant in the Royal Engineers. He was promoted to the rank of Captain in the field, and afterwards to the rank of Major. He was twice mentioned in despatches, and was awarded the Military Cross. He returned to the Caledonian Railway Company in February, 1919, and continued in the capacity of Outdoor Assistant Superintendent of the Line. On the formation of the London Midland & Scottish Railway in 1923, he was appointed Assistant General Superintendent, Northern Division. Major Speir was appointed Secretary & Manager, Northern Counties Committee, L.M.S.R. in February, 1931. In July, 1932, there was a fusion of the L.M.S.R. representation in Northern Ireland and Major Speir also took charge of both railway and steamship matters. He assumes his new position as Chief Officer for Scotland on March 31 next.

Sir Harley Hugh Dalrymple-Hay, Consulting Engineer (Railways) to the London Passenger Transport Board, who died on December 17, was the subject of an editorial note in last week's issue (at page 1). This week we publish a portrait and additional biographical particulars. Mr. Dalrymple-Hay was born on October 7, 1861, and was educated in a private school at Edinburgh. He began his engineering career as a pupil on the South Wales lines of the

Midland Railway, and afterwards became an assistant in the office of the Divisional Engineer, Brecon. He then joined the Engineering Department of the London & South Western Railway, where he was employed upon new construction works and bridgework in particular; the designs for the caissons and superstructure of Barnes railway bridge were worked out by him. Mr. Dalrymple-Hay was appointed Resident Engineer on the Waterloo & City Railway in 1894, and was subsequently engaged upon the design and construction of the Bakerloo, Hampstead, and Piccadilly tubes. In 1902 he was appointed Consulting Engineer to the Underground group of railways. Since 1907 he has also practised privately as a Consulting Engineer in Westminster, and among the works for which he has acted are the Post Office (London) tube railway and the circulating water culverts for the Portishead power station, etc., for the Bristol Corporation. He was also responsible for the report and recommendations submitted to the Government of India in 1921 concerning a tube railway system for Calcutta. Of more recent years he has completed a small tunnel for cables for the Calcutta Electric Supply Corporation under the River Hooghly; this was the first shield-driven tunnel in the East, and was carried out entirely by Indian labour under British supervision. He was also responsible for the construction of the new Piccadilly Circus station, and a large number of escalator interchanges on London tube stations; for the Piccadilly Line extension to Arnos Grove and Cockfosters; and for the construction of the interchange station at Leicester Square. In January, 1933, he was awarded the honour of Knighthood. At the time of his death Sir Harley was carrying out the important scheme of extensions of the tube railways of the London Passenger Transport Board. His wide experience of tube construction placed him in a unique position where such works are concerned, and enabled him to invent his special clay-stopping system for tunnelling in water-bearing strata with a hooded shield, and other refinements in tube construction generally, many of which are now standard practice both in Great Britain and America.

We regret to record the death on December 4 of Sir Robert Montrésor Jackson. Sir Robert was the fifth holder of the baronetcy, and was born in Hamilton, Ontario, on March 11, 1876. He was educated in England at Tonbridge School. In 1893 he became apprenticed to the firm of Neilson & Co. at the Hyde Park locomotive works, Glasgow. In 1898 he left England to go to Brazil as Acting Locomotive Superintendent of the Donne Thereza Christina Railway. He transferred, in the same capacity, two years later to the service of the Argentine Great Western Railway, and in 1901 became Chief Draughtsman of the Buenos Ayres & Rosario Railway. He remained with this company for three years, during which period he became Works Manager, Chief Vehicle Inspector, and Assistant to the Chief of the Locomotive, Carriage & Wagon Running Department. In 1904 he was appointed acting Locomotive Superintendent of the Argentine North Eastern Railway. After five years with this railway he joined the technical staff of a firm acting in Argentina for a number of British and United States engineering firms. In 1911 he went on behalf of Sir Douglas Fox & Partners to report upon the Benguela Railway, Portuguese West Africa, and in the next year went back to Argentina as Chief of the Argentine Government Commission set up to make a valuation of all its State railways. Sir Robert returned to England to undertake war work in 1916, and in 1919 went back to South America to act as representative in Brazil for Babcock & Wilcox Limited. He remained with this company until 1923, when he gave up active participation in engineering work. When the present war began, Sir Robert volunteered for national work, and last July was appointed Inspector in the Ordnance Department. He was a Member of the Institution of Mechanical Engineers, and an Honorary Member of the Institution of Engineering Inspection.

Barratts] [London

The late Sir Harley H. Dalrymple-Hay

Consulting Engineer (Railways), London Passenger Transport Board, 1933–40

Staff and Labour Matters

Seamen's Wages

The National Maritime Board has made an agreement under which the wages of officers and crews of the British Merchant Navy are being increased by £2 a month as a temporary measure from January 1, 1941. Boys receive half this amount. The conditions under which these increases are to be paid are the same as those attached to the payment of seafarers' war risk money of £5 a month, which has operated since September, 1939. The National Maritime Board has also agreed, as a temporary wartime measure, that the "in port" overtime rates for ratings be increased on January 1 :—

Previous Rate		War Rate January 1, 1941
s. d.		s. d.
0 6	Hourly ...	0 9
1 0	Hourly ...	1 6
1 3	Hourly ...	1 9
1 9	Hourly ...	2 3
1 9	Consolidated Weekly Rates ...	2 6
3 6	Consolidated Weekly Rates ...	5 0
8 0	Consolidated Weekly Rates ...	11 0

Dollar Securities

Among American dollar securities recently transferred to the British Treasury by the Treasury Order made under the Defence (Finance) Regulations, dated December 14, 1940, are a number in railways and cognate undertakings. They include (acquisition price is shown in parenthesis): American Locomotive Company 7 per cent. cumulative preferred stock in shares of $100 (£21 2s. 3d.); Atchison Topeka & Santa Fe Railway Company 5 per cent. non-cumulative preferred stock in shares of $100 (£15 19s. 2d.); Lima Locomotive Works common stock in shares of no par value (£7 7s. 10d.); Pennsylvania Railroad Company capital stock in shares of $50 (£5 11s. 2d.); Chesapeake & Ohio Railway Company 4½ per cent. general mortgage gold bearer bonds 1992 (£32 17s. 9d.); Chesapeake & Ohio Railway Company 4½ per cent. general mortgage gold registered bonds 1992 (£32 2s. 10d.); Pennsylvania Railroad Company 4½ per cent. gold debentures 1970 (£24 2s. 1d.); Southern Railway Company (Va.) development and general mortgage 6 per cent. gold bonds series "A" 1956 (£19 9s. 2d.).

BUFFER-STOP COLLISION AT MUSSELBURGH, L.N.E.R.—On January 1 a goods train crashed through the buffers-stops and demolished some of the station buildings at Musselburgh, L.N.E.R. The bookstall attendant was killed.

TRANSPORT SERVICES AND THE WAR—72

Reductions in passenger services—L.N.E.R. amenities for servicemen—Transport dislocation in the Balkans—Restoration of parcels services to Greece, Turkey, and Jugoslavia

The Superintendent of the L.N.E.R. Scottish Area has received the following letter from the Controller of the General Post Office, Edinburgh, in connection with the mail traffic dealt with by L.N.E.R. staff during the Christmas period: "I wish to convey to you my warmest thanks for the satisfactory manner in which the Post Office mail traffic was disposed of by your staff, and also my appreciation of the various facilities afforded during the pressure period. The arrangements carried out were of great advantage and contributed in a large measure to the abnormal traffic being successfully overtaken."

Reductions in Passenger Services

Although some cuts have been made in passenger services on the main-line railways to enable more coal trains to be worked, the companies are endeavouring to reduce interference with passenger trains to the minimum. Very few trains are being taken off by the L.M.S.R., but in the Birmingham area, on Monday last about a dozen local trains were cancelled. In London, the L.M.S.R. suburban service between Broad Street and Richmond was withdrawn between the hours of 9 p.m. and 6 a.m. also from Monday last (January 6). For some time past the services between Kentish Town and Moorgate and between Willesden and Earl's Court have been suspended, and are not being resumed at present.

On the L.N.E.R. system the services of through passenger trains between the Great Northern suburban stations and Moorgate, at present not working, are suspended indefinitely.

No cuts are being made on the Great Western Railway.

To assist coal traffic, the Southern Railway, on Monday last discontinued the train services between Blackfriars and Crystal Palace (High Level). Passengers to and from the Crystal Palace line are provided during business hours with shuttle services to and from Nunhead connecting with the trains between Holborn and Blackfriars and the Catford loop line. The particular assistance to coal traffic resulting from this alteration to services is due to the fact that one of the main junction routes from the northern lines to the Southern Railway is through Blackfriars.

Railway Interest Warrants Destroyed by Fire

It was announced on December 31 that the warrants for interest on the L.N.E.R. 3 per cent., 4 per cent., and 4½ per cent. debenture stock and Midland & Great Northern Joint Line 3 per cent. recent charge stocks, payable on January 1, 1941, and drawn in the names of stockholders to whom they are posted direct, had been destroyed by fire. Fresh warrants are being prepared and will be posted as soon as possible. Warrants for interest payable to banks for the credit of stockholders were not affected.

It was also stated on December 31 that owing to unforeseen circumstances it would be impossible to deal with any stock and transfer matters of the Southern Railway until further notice. Stockholders who had authorised payment of debenture interest to their bankers were credited on January 1, but dispatch of individual warrants to the other holders is considerably delayed. Payment in respect of the South Eastern Railway (Reading) annuities, due January 14, will also be delayed.

L.N.E.R. Travel Amenities for Servicemen

Apart from the 41 stations to which R.T.Os. have been allotted for the general assistance and information of troops travelling by rail, and which have required the release of 57 rooms, there are at the present time 32 stations on the L.N.E.R. possessing welfare facilities in the form of canteens and rest rooms. They are as follow:—

Southern Area.—King's Cross, Liverpool Street, Sheffield (Victoria), Retford, Doncaster, Grantham, Norwich, Cambridge, Leicester (Central), Ipswich, Nottingham (Victoria), Lincoln.

North Eastern Area.—York, Hull (King George Dock), Hull (Paragon), Leeds (City), Harrogate, Ripon, Richmond, Thornaby, Darlington, Newcastle, Hartlepools (Victoria Dock), Malton, Wetherby.

Scottish Area.—Edinburgh (Waverley), Glasgow (Queen Street), Aberdeen, Dundee (Tay Bridge), Inverkeithing, Methil Docks, Keith.

These arrangements have involved the provision of sites for 21 specially-constructed buildings and the release by the company of 49 rooms, ranging from the third class refreshment room at Hull to the new mail bag depot at King's Cross—through which not a single mail bag has yet passed. The organisations responsible for the management of the canteens and rest rooms at L.N.E.R. stations include the Y.M.C.A., the W.V.S., the V.A.D., the Salvation Army, the Church Army, the St. Andrews Ambulance Association, and the Territorial Association, with all of which the company works in close contact.

At King's Cross, for instance, the canteen and rest room arrangements, with the exception of the free cloakroom and dormitories for R.T.O. personnel, are in the hands of the Salvation Army. These facilities comprise a canteen at the south end of the station and another in the new mail bag depot, whilst John Laing & Son Ltd. has placed its show house, which is erected on the company's property, at the disposal of the Salvation Army for rest accommodation. Adjacent to the show house is a hut containing 20 beds available for 6d. each per night. Illustrations showing these arrangements at King's Cross were published at page 230 of our August 30 issue. At Liverpool Street the Y.M.C.A. looks after troops on the move and there is a comfortable canteen and rest room as well as facilities in the Abercorn Rooms. Additional rest accommodation during the late hours of the

CAN YOU PUT 3 INTO 1½?

In peacetime the "rush hour" lasted 180 minutes.

Now, because of the black-out, millions of day-time workers throughout the country cease work simultaneously and the rush hour is concentrated into 90 minutes.

The problem of the Railways is to carry all these people in 1½ hours instead of 3: to do 3 hours' work in 1½ hours.

The Railways are running all the trains that the tracks can take. Therefore every train must carry the maximum number of passengers.

You can help by travelling home a little earlier whenever possible.

KEEP THOSE WAGONS MOVING

Railway wagons are the merchant ships of the land.

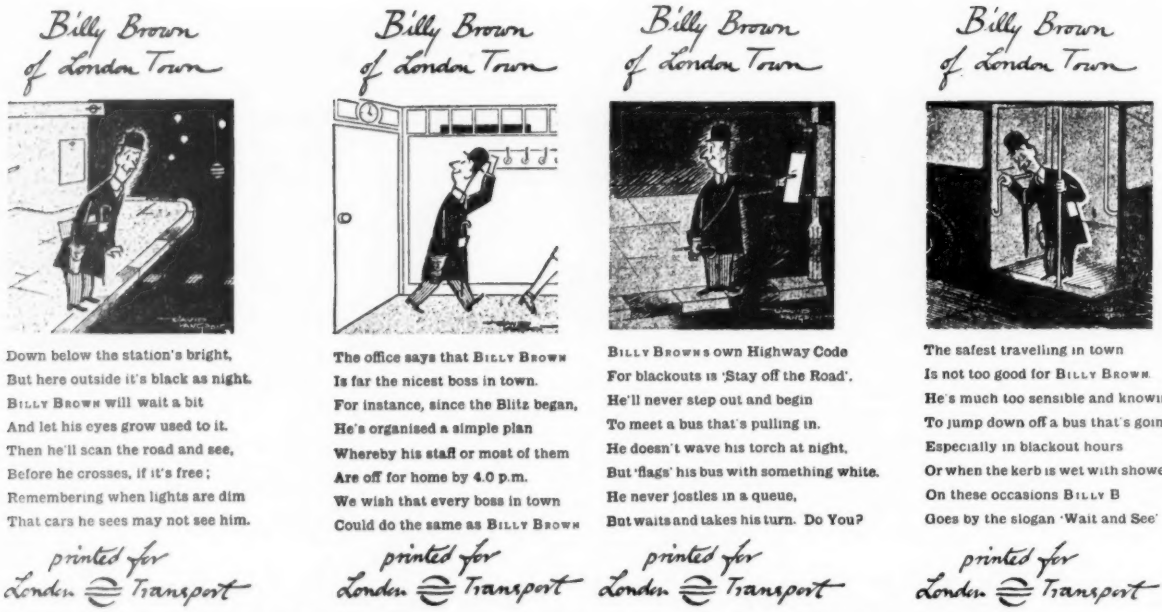
Just as steamships bring us warplanes, munitions and food supplies from over the seas, so Railway wagons convey materials of war, coal and the nation's food across the country.

Every wagon held up longer than is necessary is like a ship "laid up" in port.

Every merchant or trader keeping a wagon in his yard a moment longer than is required for loading or unloading is delaying one of the country's overland merchant ships and holding up vital war transport.

BRITISH RAILWAYS BRITISH RAILWAYS

The latest British railway press advertisements


Billy Brown of London Town
Down below the station's bright,
But here outside it's black as night.
Billy Brown will wait a bit
And let his eyes grow used to it.
Then he'll scan the road and see,
Before he crosses, if it's free;
Remembering when lights are dim
That cars he sees may not see him.
printed for London Transport
Billy Brown of London Town
The office says that Billy Brown
Is far the nicest boss in town.
For instance, since the Blitz began,
He's organised a simple plan
Whereby his staff or most of them
Are off for home by 4.0 p.m.
We wish that every boss in town
Could do the same as Billy Brown
printed for London Transport
Billy Brown of London Town
Billy Browns own Highway Code
For blackouts is 'Stay off the Road'.
He'll never step out and begin
To meet a bus that's pulling in.
He doesn't wave his torch at night,
But 'flags' his bus with something white.
He never jostles in a queue,
But waits and takes his turn. Do You?
printed for London Transport
Billy Brown of London Town
The safest travelling in town
Is not too good for Billy Brown.
He's much too sensible and knowing
To jump down off a bus that's going,
Especially in blackout hours
Or when the kerb is wet with showers.
On these occasions Billy B
Goes by the slogan 'Wait and See'
printed for London Transport

The ideal London blackout traveller as depicted in a series of London Transport advertisements

night and early hours of the morning is available in trains stabled in the station.

In the Scottish Area the St. Andrews Ambulance Association has provided a rest room at Glasgow (Queen Street). At Edinburgh (Waverley) there is a canteen open day and night, whilst a Red Cross rest house, originally intended for sick and wounded, is now available for all. The premises at Queen Street station, Glasgow, were formerly used as a luggage store and have been equipped with a canteen, reading and writing facilities, and a lounge. The rest room was opened on June 28 by Lord Provost P. J. Dollan, who enumerated the many facilities now available for Servicemen on travel, and stated that no Servicemen arriving in Glasgow need be in want of any kind.

In the North Eastern Area no fewer than eight specially-constructed canteens have been given sites, and these include attractive green, red, and cream structures, with Gill Sans lettering, at Newcastle and York. Leeds is also well equipped and the Y.M.C.A. canteen and rest room at the city station form the subject of the following remarks by a Y.M.C.A. official there:—

"The railway companies and officials have been most helpful. We have the old parcel depot, opposite to the entrance of the old N.E. station, and while we are not on the station platform—the ideal position—we are only a few yards away. Our dormitory accommodation is excellent—light and airy rooms and 60 good beds. At the canteen food may be obtained cheaply at any time in the 24 hours. It is run by a voluntary staff of 200. Bed and breakfast cost 1s. 6d.—ninepence for the bed and ninepence for a breakfast of bacon, egg, bread and butter, and tea. Each week about 300 dozen eggs are used. Scores of thousands of meals have been served since the middle of November, 1939. There are dart boards, a ping-pong table, a piano, and easy chairs, and a fire whenever it is needed. At night, a commissionaire is on duty to call sleeping men when their train-time is near. We have nothing but gratitude for the helpful attitude of the railway companies."

Almost all the facilities described in the foregoing notes had been available for some months before the debate took place in the House of Commons when the British railways received a good deal of criticism on the subject of arrangements at stations for the welfare of troops.

Reduced Fares for Wives and Children of the Forces

Although wives of members of H.M. Forces can travel in this country at reduced railway fares, the Minister of Transport is informed that there are still a great many who do not know about the concession. Attention is therefore called to the following arrangements whereby single journeys can be made at half the single ordinary fares and return journeys at the single ordinary fares in this country. Reduced fares are applicable for journeys in Northern Ireland. Tickets at the reduced rates are issued on surrender of a properly authenticated voucher at the railway booking offices on any occasion the wife wishes to travel by ordinary train. Vouchers can usually be obtained through the husbands themselves by application to their units, but if this course is inconvenient or likely to cause considerable delay application for vouchers may be made as follows:—

(*a*) Wives of members of Naval Forces.

Officers.—R.M. officers, to the Officer's R.M. Division. Warrant officers and officers promoted therefrom, to the officer's depot. Other officers serving in ships or establishments at home, to the officer's ship or establishment. Other officers serving abroad, to the Director of Navy Accounts, Bath.

Ratings and Royal Marines.—Men serving in ships or establishments at home, to the man's ship or establishment. Men serving abroad, to the home depot or marine division to which the man is attached.

(*b*) Wives of members of the Army.

Cavalry Officers.—(i) Domiciled in Great Britain, to the nearest cavalry headquarters, or cavalry regiment; (ii) domiciled in Ireland, to the Officer i/c Records, Canterbury.

Officers of the rank of colonel and above.—(i) Domiciled in Great Britain, to the headquarters of the command in which their homes are situated; (ii) domiciled in Ireland, to headquarters, Northern Ireland District.

Officers of the Royal Army Chaplains' Department.—To headquarters, Eastern Command.

All other officers.—To the O.C. depot of the unit or corps of the officer concerned.

Other ranks.—To the Officer i/c Records concerned.

(*c*) Wives of members of the Air Force.

(*a*) *Officers.*—To the Under-Secretary of State, Air Ministry (P.2), Kingsway, W.C.2.

(*b*) *Airmen.*—To the Air Officer-in-Charge, Records, Ruislip.

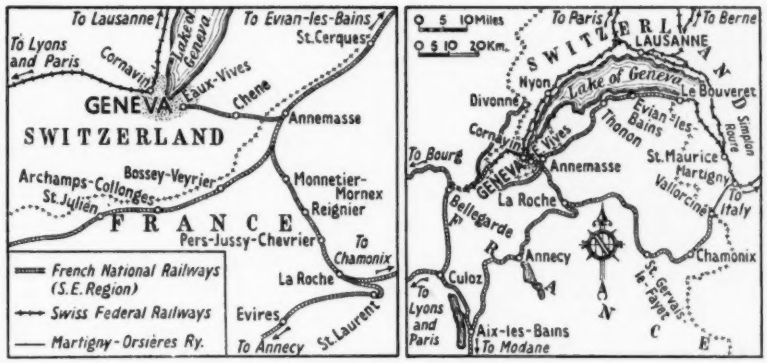
This concession is also available for children under 16 years of age of members of H.M. Forces when accompanied by either parent. Children under 14 years of age are charged half the fares for adults.

Communication between Switzerland and France

From June of last year communication between Switzerland and the unoccupied part of France could be effected only by very inconvenient routes and subject to severe restrictions imposed by the German authorities, as the only direct railway communication, that between Geneva and Bellegarde, was severed. The re-opening to traffic of this line on November 15 last, with three daily non-stop trains in each direction, was regarded in Switzerland as an important step towards the general improvement in communications, but (as we recorded at page 581 of our November 29 issue) this traffic was suspended suddenly on November 26, on the orders of the German Military Commander in the Bellegarde region. However, the Germans are understood to have permitted the resumption of passenger traffic on the line on December 16.

After the destruction by the retreating French forces on June 22 of bridges and sections of track on the Bellegarde—Geneva and Bellegarde—Annemasse lines, traffic was sus-

pended until July 9, when the Annemasse—Annecy—Aix-les-Bains route suddenly became a main line. Annemasse, an important junction, is reached by a short branch of the French National Railways from the small Geneva terminus, Eaux-Vives, which is still unconnected with the Cornavin station of the Swiss Federal Railways; actually, work on the first stage of a connecting line has now just begun. Another connecting line runs along the south shore of the lake of Geneva, through Evian-les-Bains, and at Le Bouveret joins a steam-operated branch of the Swiss Federal Railways leading to St. Maurice, on the main Simplon line. All these railways are single-track, and the Annemasse—Aix-les-Bains section is heavily graded. Neither the Eaux-Vives station at Geneva nor the frontier station of Le Bouveret is equipped for handling more than light local traffic, and both have very limited track accommodation, but until early September, thanks to the willing efforts of the staffs concerned, all Franco-Swiss traffic was successfully conveyed by these routes, Geneva (Eaux-Vives) also handling mail to and from unoccupied France and beyond. Bouveret station dealt with an average of 140 wagons daily in each direction. On September 4, rail communication was again entirely interrupted, the Lavillat viaduct, between La Roche and Annecy, having been blown up. Road services were promptly organised between Geneva and Annecy, and work on the reconstruction of the viaduct pushed forward so rapidly that traffic was resumed on October 21. Further references to Swiss frontier traffic were made in our issues of September 13 (page 286) and October 25 (page 442).



Franco-Swiss railway connections in the neighbourhood of Geneva

Transport Dislocation in the Balkans

Severe weather conditions and the increasingly tense war situation have combined to cause widespread dislocation and curtailment of transport facilities in the Balkans.

It became known on December 19 that for ten days floods had held up traffic on the main-line railway linking Istanbul with the rest of Europe *via* Adrianople. Afi, the Free French News Agency, received a dispatch from Istanbul, saying that repairs to the line would take at least ten more days, and at the time of closing for press news has not yet reached this country of resumption of traffic.

On December 17 it was reported from Belgrade that the Danube had begun to freeze; that ice floes were forming; and that navigation had been suspended.

On December 27 extensive damage was caused by a storm along the coast of the Black Sea, and several ships were not able to discharge their cargoes at Constanza. A Berlin report said that some 140 railway wagons were destroyed by being hurled by the storm against the harbour walls at Constanza. Falls of snow in all parts of Roumania have caused many railway accidents, killing several persons, according to a Havas Agency message from Vichy. The Lower Danube is said to be frozen over, and traffic interrupted between Giurgiu, in Roumania, and Rouschouk, in Bulgaria. Rail traffic between Sofia and Bucharest was forced to make a detour.

An earlier dislocation in Roumania took place on December 12 when a break occurred in the oil pipe line under a railway bridge between Telejam and the Vale of Calugareasca. A fire started, causing one of the pillars of the bridge to fall, according to a Bucharest telegram to the official Italian News Agency. Traffic on the railway running between Ploeshti and Buzeu, which links Bucharest with Bessarabia and Soviet Poland, was suspended.

Communications in Jugoslavia were severely interrupted on December 25 as the result of snowstorms; many passenger trains and buses are said to have been held up by snow which in some districts was 12 to 15 ft. deep. More than 100 yd. of railway line between Sarajevo and Mostar has been buried by a landslide, interrupting communications, according to the Swiss radio on January 4.

On December 27 reports reached this country that for three days there had been intensive movements by rail across Hungary of German troops and military equipment *en route* for Roumania. It was stated that between 1,000 and 1,200 trains had been requisitioned for this traffic, and that the German troops moving in this direction totalled between 300,000 and 350,000, but Berlin issued an official denial to neutral journalists on December 26. The Belgrade radio (quoted by the Havas Agency) announced on December 28 that rail traffic in Hungary would be restricted from the next day, December 29, owing to coal shortage " and for other reasons." In a Budapest radio statement it was said that passengers wishing to travel must give notice to the railway station 24 hours before the train was due to leave. Also on December 28 a delayed message arrived in England to the effect that the Royal Hungarian State Railways administration had some days earlier announced that " the passenger train services will be restricted so as to clear the way for the passage of 1,160 troop trains at the rate of 30 to 40 trains a day between now and January 31." Obviously railway administrations do not normally announce troop train movements, and added strength was thus given to the feeling that had been growing that the various vague rumours were of German inspiration as part of the " war of nerves."

Whatever was the reason, the effect of the drastic railway reductions in Hungary was to reduce the 73 daily trains on the twelve main lines by 22. Reuters states that fast trains now run only on four main lines. There is no express between Budapest and Kolozsvar or Debrecen, and instead of six trains daily between Budapest and Kolozsvar there are now only two. One railcar and one slow train run between Budapest and the Austrian frontier at Hegyeshalom instead of three expresses and three slow trains heretofore. Similarly there is no express between Budapest and the Jugoslav frontier at Kelebia, and there are only two trains running daily to Nagy Kanizsa, on the main line to Trieste, in place of seven trains.

Parcel Service to Greece, Turkey, and Jugoslavia

The British parcel service to Greece, Turkey, and Jugoslavia was restored on January 1. Parcels may be sent only by holders of Censorship permits. The transmission of the parcels is likely to occupy some weeks.

Italian Train Service Curtailments

The Swiss newspaper *Le Democrat* of Delemont reported on December 19 that civilian passenger and goods traffic had been suspended on the Brenner Pass railway so as to permit the passage of German divisions to Italy. Since then there have been many rumours of German troop movements into Italy, but they remain unconfirmed and may possibly have been inspired by Germany in order to test world reactions.

On December 19 numbers of passenger trains, involving several main lines, were cancelled. The original announcement, which reached this country *via* Zurich, gave coal shortage as the reason for the step, and 44 as the total of trains withdrawn. Two days later, however, the Italian newspapers disclosed (said a British United Press message)

XUM

that the total number of trains taken out of service on December 19 was 97 and that the suspensions range over all Italy, from the Brenner Pass to Sicily. In the Italian newspapers no reason was given for the suspensions, but they assumed that the intention was to discourage the public from travelling to military bases and ports. It was then said that ten passenger trains had been suspended on the Brenner Pass line, and the conclusion was drawn that coal exports from Germany to Italy had been increased because of the severe winter.

The Berlin radio announced on December 17 that traffic had been resumed on the railway between Turin, Cuneo, and Ventimiglia. A British United Press message from Vichy of December 29 said that the Franco-Italian frontier had been closed to all travellers. No reason was stated.

Snow and Frost Dislocation in Western Europe

Communications have been interrupted and considerable damage done to property in France, Switzerland, and Spain, as a result of exceptionally heavy falls of snow and resultant avalanches in mountainous districts. Railway communications throughout the greater part of south-eastern France are reported from Vichy to be seriously affected, and the French National Railways have announced the temporary suspension of a number of trains. As we close for press it is reported that snow has ceased to fall but that the freeze-up continues. Railway communications in "unoccupied" France are said to be improving. Some of the Swiss railways are also reported to have been closed as a result of snow difficulties. Owing to transport uncertainty the third quota of household coal in Switzerland, intended for distribution in February, has been withheld for the present. Last December is said to have been the coldest in Switzerland for 40 years. In Spain, snowstorms are reported to have interrupted railway services.

Fuel Conservation in Switzerland

Railway station buffets and restaurants in Switzerland must not serve hot dishes after 9 p.m. and must close at 11 p.m. as from January 2. They are thus brought into line with the general rule applying to Swiss restaurants and cafés. The object of the measure is to save fuel, says Reuters.

Shortage of Iron in Switzerland

Dearth of iron in Switzerland has resulted in the suggestion being made that rails should be removed from railways of secondary importance, especially those that do not cover their operating expenses.

Paris Transport

As a result of the lack of surface transport, the receipts of the Paris Metro for November, 1940, were fr. 89,000,000, compared with fr. 43,000,000 a year earlier. Electrically-operated suburban railways are stated to be working almost normal services.

Medical Benefits for Evacuee Children in South Africa

As a special emergency war measure it has been decided that the full benefits provided by the Railways & Harbours Sick Fund will be extended to evacuee children who may be placed in the temporary care of railway servants, upon payment by the servants concerned of a special additional contribution of 2s. 6d. a month in respect of each child.

Further Indian Railway War Contributions

The Indian railways are making a valuable contribution to war production. Whole workshops have been diverted to the manufacture of essential supplies, and orders already completed or undertaken include firing platforms, trench mortars, machine tools, gauges, hundreds of thousands of grenades and shell cases, and over a thousand motor bodies. In addition, the railways are assisting the Government of India scheme for the technical training of personnel for war work by arranging for the training of nearly 2,000 men in their workshops.

New Year Message from G.W.R. General Manager

The following message appears over the signature of Sir James Milne in the January issue of the *G.W.R. Magazine*:—

"Last year witnessed the intensification of the struggle which so vitally concerns us all; to many it brought sorrow and distress, and to others long days and nights of unremitting toil, frequently under circumstances of great danger. I know all the Great Western staff will face the year to come with the same courage and determination with which they have met the difficulties of the past year, and to one and all I send my best wishes."

RAILWAY AND OTHER MEETINGS

The Pullman Car Co. Ltd.

The annual general meeting of the Pullman Car Co. Ltd. was held at the Conference Room, Victoria station, London, S.W.1, on December 30, 1940. Mr. Stanley Adams presided in the unavoidable absence of Sir Follett Holt, K.B.E., the Chairman of the company.

The Secretary, Mr. E. J. Morris, having read the notice convening the meeting and the report of the auditors, Mr. Stanley Adams, reading the speech prepared by Sir Follett Holt, said:—

The report and accounts will have given an indication of how the company has suffered from the war. Our offices have been destroyed. Fortunately our staff escaped with a few exceptions, whose injuries were only slight. Our colleague, Mr. Richard Guinness, who for many years has been constant in safeguarding the company's interests, was not so fortunate, but he is making, I am thankful to say, a good recovery. During the last year, Mr. Ashton, the company's Secretary, after years of faithful service, passed away, to our great regret.

On the brighter side I may say that after prolonged negotiations we have agreed with the railways, with which we work, the terms, as stated in the report, upon which we shall remain for the duration of the war. These terms are intended to enable the company to return to its usefulness when the war is over. The financial side will be met by the railways in the near future and then we shall be in a position to carry out the intention described in paragraph 2 of the Report.

During the last year the Chairman and Managing Director and the other directors gave up to the company all their remuneration, but in view of the settlement with the railways they intend for this year to draw their usual remuneration.

In the near future one-third of the £100,000 of capital raised on the 4 per cent. debenture will be repaid. The interest, therefore, on the balance will be less this year. On the other hand, if the War Insurance Bill is passed by Parliament, we shall have to provide from revenue a substantial amount to cover our rolling stock, but we shall receive payment for the damage that has been already done. At this date it is impossible to say what operating loss will be incurred this year or what the charges for insurance will amount to. We can only, therefore, patiently await events.

Our thanks are due to Mr. Griffith for his skilled attention to the company's affairs; to Mr. Morris and Mr. Sedcole and to all our much reduced employees for the way in which they are carrying on in these difficult and dangerous times.

The Chairman then moved and the Hon. H. E. Fitzalan Howard seconded, the adoption of the report and accounts. This was carried.

Mr. Stanley Adams proposed and Mr. A. H. Gravely seconded, that the Hon. H. E. Fitzalan Howard be re-elected a director; this was carried. Mr. Stanley Adams then proposed and the Hon. H. E. Fitzalan Howard seconded, that the vacancy occasioned by the retirement of Baron R. Snoy be not filled; this was unanimously carried.

Mr. H. D. Leather proposed and Mr. A. H. Gravely seconded the re-appointment of the auditors, which was carried.

Mr. H. D. Leather proposed and Miss M. A. Couper seconded that the meeting regretted to hear of the accident to Mr. Richard Guinness and sent their good wishes for his speedy recovery. This was unanimously carried.

RAILWAY AND OTHER REPORTS

Metropolitan Railway Country Estates Limited.—Report for year ended October 31 last shows a profit of £18,538, compared with £29,930 for 1938-39. The dividend is reduced from 6 to 3 per cent.; £10,000 is again transferred to general reserve, and £30,709 is carried forward.

East Indian Railway Co. Ltd.—The accounts of the four classes of annuities for the half-year to September 30, 1940, show the following: Annuities "A"—net income £89,065, expenditure £1,058, amount payable £72,164; Annuities "B"—net income £312,445, sinking fund £20,830, expenditure £1,302, amount payable £232,524; Annuities "C"—net income £58,602, sinking fund £7,327, expenditure £244, amount payable £40,164; Annuities "D"—net income, £111,812, sinking fund £13,977, expenditure £466, amount payable £76,732.

Bengal & North Western Railway Co. Ltd.—The board proposes a final dividend of 7 per cent. and a bonus of 1 per cent. on the ordinary stock, making with the interim dividend of 4 per cent. and bonus of 4 per cent. paid in July last, 16 per cent. for the year to September 30, 1940. Net profits for the year (no appropriation of interest is being made) were £372,526, against £365,489, in the previous year, when one year's interest was appropriated. For 1938-39 the total distribution was also 16 per cent., namely, 11 per cent. dividend and 5 per cent. bonus.

Rohilkund & Kumaon Railway Co. Ltd.—A final dividend on the ordinary stock of 6 per cent., together with a bonus of 2 per cent., makes, with the interim dividend of 4 per cent. and the bonus of 4 per cent. paid in July last, 16 per cent. for the year ended September 30, 1940. Net profits (no appropriation of interest is being made) are £73,003, against £45,407 for 1938-39, when one year's interest on reserves amounting approximately to £16,600 was appropriated. The total distribution for 1938-39 was the same, namely. 16 per cent., made up of 10 per cent, dividend and 6 per cent. bonus.

Assam Railways & Trading Co. Ltd.—The company operates in the north-east of Assam the Dibru-Sadiya metre-gauge line of 111 miles, and the Ledo and Tikak Margherita Colliery line of 32 miles. It also possesses collieries, sawmills, veneer mills, brickworks, and motorbuses, and holdings in the Rivers Steam Navigation Co. Ltd. and in two tea companies also form part of its assets. Gross railway earnings in the year under review improved from £150,886 to £157,838, but railway expenses rose from £85,710 to £92,688 and the profit on working was reduced from £65,176 to £65,150. Train mileage was reduced from 387,974 to 381,079, and the number of passengers carried (1,318,011) showed a small decrease of 3,686. Profit from general trading was £65,884 against £68,254 in the previous year. After providing £35,000 for E.P.T. and income-tax, transferring £13,500 to general reserve, and after payment of debenture interest and allowing for preference dividends, a balance remains at credit of net revenue account of £57,945. No dividend is being paid on the 8 per cent. cumulative "A" stock (against 4 per cent. last year) and £54,945 is carried forward.

Midland Uruguay Extension Railway Co. Ltd.—Accounts for year to June 30, 1940, show £10,058 (same) received under Uruguay Government guarantee, £532 (£466) from Midland Uruguay Railway under working agreement, £14 (same) from deposit interest and transfer fees. Total revenue is £10,604 (£10,538) and total expenditure £10,604 (£10,538).

Mexican Eastern Railway.—Report for 1939 refers to schemes of arrangement of 1927 and 1931, under which debenture interest is payable out of the company's proportion of the pooled net earnings of the Interoceanic System of Railways, and as the latter again made a loss there is no revenue due to the company and no funds available out of which the interest can be paid. The debenture stockholders' committee has extended conditionally for another year the moratorium up to June 30, 1941.

Buenos Ayres Midland Railway Co. Ltd.—The report for the year to June 30 last of this company, which is controlled jointly by the Buenos Ayres Great Southern and the Buenos Ayres Western Railway Companies, shows that the rent received from the working companies was £171,282, compared with £164,272 last year. Amount brought forward was £1,562. After paying administration expenses, N.D.C., interest on advances by working companies, directors' fees, £96,000 for debenture interest, £40,000 for preference dividend, and £20,000 for the usual 4 per cent. ordinary dividend, there is a balance of £1,562 to be carried forward.

Trans-Zambesia Railway Co. Ltd.—Gross receipts of the railway, including the southern approach to the Zambesi bridge, for the year 1939 were £172,878, against £169,728 in 1938, and working expenses rose from £109,273 to £110,841, leaving net receipts £62,036 compared with £60,455. Working expenses in 1939, including the southern approach, the river service, and the amounts charged to renewals, were 63·74 per cent. of the gross receipts, compared with 64·38 per cent. in 1938. Total tonnage in 1939 was 90,064 tons, of which 22,110 was general merchandise. This compares with a total of 80,303 tons in 1938, of which 23,144 was general merchandise. Passenger receipts showed an increase from £19,772 to £24,730 but goods traffic earnings fell from £137,082 to £135,759. The amount of £43,992 due from the Nyasaland Government under the guarantee has been received and this, with the balance of £63,074 from revenue account, covers interest and other charges and the £35,550 set aside for debenture redemption account.

Beyer, Peacock & Co. Ltd.—A further payment of one year's dividend is being made on the 5½ per cent. preference shares. This brings the dividend up to the end of 1932.

Moss Gear Co. Ltd.—Final dividend is 12½ per cent., with cash bonus of 5 per cent., making 22½ per cent. for the year ended August 31, 1940. This compares with 13¾ and 17½ per cent. respectively.

John I. Thornycroft & Co. Ltd.—Profit after depreciation and taxation for the year to July 31, 1940, was £160,334 (against £195,215). Directors' fees, debenture interest, and benevolent fund absorbed £18,357 (against £26,044) leaving a profit balance of £141,977 (£169,171). Ordinary dividend is again 10 per cent.; £67,450 (against £100,000) is transferred to reserve and carry forward is £67,653 (against £53,877).

Sentinel Waggon Works (1936) Limited.—The company earned a net profit, after reserving £77,629 (against £25,000) for taxation, of £15,503, for the year to July 31, 1940, compared with £19,091 for 1938-39. One year's dividend was paid on the preference shares in July, a further six months' payment was made in November, and the directors recommend the payment of the half-year's dividend due on December 31. General reserve is credited with £9,629 and £2,500 is carried to staff fund.

Butler Machine Tool Co. Ltd.—Net profit for the year to September 30, 1940, was £61,198 (against £69,442), after deducting £18,000 (£14,000) for E.P.T. and N.D.C. For income tax £13,868 (against £4,500) is provided, and a further £12,000 (against £15,000) in respect of any additional taxation for which the company may be liable. For possible obsolescence of buildings and plant £3,000 (against £3,500) is allocated. Ordinary dividend is 12½ per cent. (against 17½ per cent.) and £16,877 (against £15,802) is carried forward.

Central Wagon Co. Ltd.—Net profit for the year ended September 30, after providing for taxation, amounted to £87,416, against £72,611 for 1938-39. A final dividend is proposed of 9½ per cent., making 12½ per cent. for the year, compared with 8 per cent. and 2 per cent. bonus for the previous period. The reserve appropriation is raised from £35,000 to £45,000 and the amount carried forward is £17,829, against £12,100. Owing to the requisitioning of private wagons the business of the company has been on a new basis, Government having become the tenant of wagon-hiring companies. All liabilities on financed wagons have been repaid and the whole of the 24,453 wagons are entirely free.

XUM

Notes and News

Railway Benevolent Institution.—The number of railway employees who became members of last year's Casualty Fund was 158,376, and assistance has been rendered to no fewer than 109 widows of men killed, 663 widows of men dying from illness, and 4,484 men accidentally injured, making a total of 5,256 cases relieved, or one in every 30 contributors.

Export to Eire.—The Board of Trade has made the Export of Goods (Control) (No. 43) Order, 1940 (S.R. & O. 1940, No. 2176) which came into force on January 1. Under the terms of this Order it is prohibited to export to Eire without licence from the Board of Trade various classes of goods including dies (whether mounted or not) of diamond or metallic carbide, and tools and tool parts of which the cutting edge is tipped with diamond or metallic carbide.

Moss Gear Co. Ltd.—At the ordinary general meeting held in Birmingham on December 31 Mr. Walter Duckitt, the Chairman, pointed out that the amount allowed by the Inland Revenue for depreciation of plant was utterly inadequate, but the directors had made provision in the accounts for the extra wear and tear on plant generally which arose through the continued use made necessary to keep pace with the larger flow of orders received. They had a very keen interest in keeping the plant at the maximum efficiency possible and entirely up to date. This and improved methods of manufacture had resulted in the output of the factory having increased 33½ per cent. on the previous year.

Railway Rates Tribunal.—Applications for the granting of new or the reduction of existing exceptional rates for which the consent of the Railway Rates Tribunal is required will be heard by the tribunal on January 21, February 18, March 18, April 22, May 20, June 17, July 15, October 14, November 18, and December 16, 1941. The Court will sit on January 28, April 29, July 22, and October 21, 1941, to hear applications to determine any alterations of the classification of merchandise or the classification of any article not at the time classified; applications for reductions made from standard charges where merchandise is carried under owner's risk conditions; and applications to determine questions relating to rebates on allowances under the Railway Freight Rebates Scheme.

Trading with the Enemy.—The Board of Trade has made a new Order, which came into force on December 19, containing 266 additions to the "black list" of traders in neutral countries with whom it is unlawful to have dealings of any kind. Further additions will be made in due course. The Order is published by H.M. Stationery Office under the title of the Trading with the Enemy (Specified Persons) (Amendment) (No. 13) Order, 1940 (S.R. & O., 1940, No. 2093).

Jonas Woodhead & Sons Ltd.—Captain Allan Kyle at the annual general meeting held in Leeds on December 31 said that a large increase of production had been achieved, as was indicated by the increased profits earned. The services of the company's design & research department had been at all times at the disposal of the Ministry of Supply, and this had resulted in a widening usefulness and a degree of collaboration in the face of which the bogey of red tape had largely disappeared.

Canadian National Earnings.—Gross earnings for November, 1940, were $22,289,448, an increase of $1,804,671 on the same month of 1939, and operating expenses were $16,865,224—an advance of $1,255,051. Net earnings at $5,524,224 were higher by $549,620. From January 1 to November 30 gross earnings were $223,790,418, a rise of $39,016,549, and operating expenses were $17,363,493 more at $185,056,556. Aggregate net earnings at $38,733,861 were up $21,653,056.

Insurance of Livestock by Goods Trains.—The British railways have decided to continue for a further 12 months from January 1, 1941, without alteration of premiums, the scheme which enables the owners of livestock to insure their animals against death or injury during transit by the prepayment of a small premium. The animals which may be insured, the premiums, and the insurable maximum values covered, are as under:—

Animals	Premiums	Insurable maximum values
Horses and ponies ...	8d. a head	£50 a head
Cattle	8d. ,,	£25 ,,
Calves	1d. ,,	£2 ,,
Sheep and lambs ...	1½d. ,,	£3 ,,
Pigs (Bacon)	3d. ,,	£6 ,,
,, (Porker)	2d. ,,	£3 ,,

The minimum premium is 2d. a consignment. The scheme does not cover war risks.

Irish Traffic Returns

IRELAND		Totals for 52nd Week			Totals to Date		
		1940	1939	Inc. or Dec.	1940	1939	Inc. or Dec.
		£	£	£	£	£	£
Belfast & C.D. (80 miles)	pass.	3,334	2,459	+ 875	167,163	133,493	+ 33,670
	goods	638	497	+ 141	35,024	25,332	+ 9,692
	total	3,972	2,956	+ 1,016	202,187	158,825	+ 43,362
Great Northern (543 miles)	pass.	16,250	14,300	+ 1,950	638,750	586,650	+ 52,100
	goods	12,300	7,600	+ 4,700	707,350	585,250	+ 122,100
	total	28,550	21,900	+ 6,650	1,346,100	1,171,900	+ 174,200
Great Southern (2,076 miles)	pass.	44,117	42,931	+ 1,186	1,836,150	1,915,170	− 79,020
	goods	32,722	21,986	+ 10,736	2,566,394	2,395,630	+ 170,764
	total	76,839	64,917	+ 11,922	4,402,544	4,310,800	+ 91,744
L.M.S.R. (N.C.C.) (247 miles)	pass.	7,070	4,970	+ 2,100	302,060	245,820	+ 56,240
	goods	4,940	2,740	+ 2,200	228,910	160,970	+ 67,940
	total	12,010	7,710	+ 4,300	530,970	406,790	+ 124,180

British and Irish Railway Stocks and Shares

Stocks	Highest 1940	Lowest 1940	Prices Jan. 7, 1941	Prices Rise/Fall
G.W.R.				
Cons. Ord.	52	22½	34	+1½
5% Con. Pref. ...	103½	58	86	+2
5% Red. Pref. (1950)	105½	88	97½	—
4% Deb.	107½	90½	105	—
4½% Deb.	108½	96½	108	—
4½% Deb.	114½	96	113½	—
5% Deb.	124 2/4	106	121½	+½
2½% Deb.	66½	57	61	—
5% Rt. Charge ...	117½	97	115½	+1
5% Cons. Guar. ...	117	90½	113	+1
L.M.S.R.				
Ord.	24⅞	9	14	+½
4% Pref. (1923) ...	60½	21⅛	38½	+1
4% Pref.	70¾	35	51½	—
5% Red. Pref. (1955)	94½	60	76½	—
4% Deb.	101¾	81	100½	+1
5% Red. Deb. (1952)	109½	102	108	+1
4% Guar.	93¾	65	86	+1
L.N.E.R.				
5% Pref. Ord. ...	8⅜	1½	3	—
Def. Ord.	4⅜	1¾	1⅜	—
4% First Pref. ...	60	20	34½	+1
4% Second Pref. ...	22⅞	6½	11	—
5% Red. Pref. (1955)	80	34½	50	—
4% First Guar. ...	86½	56	76	+1
4% Second Guar. ...	77½	37	61	—
3% Deb.	73½	54½	69½	+1
4% Deb.	97⅜	74	92	—
5% Red. Deb. (1947)	107	96¾	103	—
4½% Sinking Fund Red. Deb.	104	98	99½	—
SOUTHERN				
Pref. Ord.	79	34	46½	+1
Def. Ord.	22½	7	10¾	+¾
5% Pref.	104½	58¾	84½	—
5% Red. Pref (1964)	105	85	89½	+1
5% Guar. Pref. ...	116¾	90	113	+1
5% Red. Guar. Pref. (1957)	114 7/8	94	109½	+1
4% Deb.	106¾	84½	105½	+1
5% Deb.	122½	100	119½	—
4% Red. Deb. (1962–67)	106	96½	100½	—
4% Red. Deb. (1970–80)	106⅜	93	101½	—
FORTH BRIDGE				
4% Deb.	95½	87	87½	—
4% Guar.	93½	81½	84½	—
L.P.T.B.				
4½% "A"	116	103	109½	+½
5% "A"	121½	107	116	+1
4½% "T.F.A." ...	105½	101	102½	—
5% "B"	116	102	104	—
"C"	65½	24	33	—
MERSEY				
Ord.	26	18½	21½	—
4% Perp. Deb. ...	92½	86¾	91½	—
3% Perp. Deb. ...	68	63	60½	+½
3% Perp. Pref. ...	57	50½	54½	—
IRELAND				
BELFAST & C.D.				
Ord.	4	3	4	—
G. NORTHERN				
Ord.	4½	1½	3	—
G. SOUTHERN				
Ord.	12½	4	5	—
Pref.	15½	6	12½	—
Guar.	36	15	16	−½
Deb.	55½	40	42	+1

OFFICIAL NOTICES

Canadian National Railway Company

WELLINGTON GREY & BRUCE RAILWAY COMPANY, 7 PER CENT. BONDS

NOTICE IS HEREBY GIVEN That the estimated earnings of the Wellington Grey & Bruce Railway Company for the half-year ending 31st December, 1940, applicable to meet interest on the above Bonds, will admit of the payment of £4 8s. 6d. per £100 bond, and that this payment will be applied as follows, viz.:

£2 14s. 7d. balance due for Coupon No. 118, due 1st July, 1929; and £1 13s. 11d., on Account of Coupon No. 119, due 1st January, 1930, and will be made on and after 1st January, 1941, at the offices of the Canadian National Railway Company, Orient House, 42/5, New Broad Street, London, E.C.2, England.

The coupons must be left three clear days for examination.

A. H. CONEYBEARE
European Secretary & Treasurer

London, 1st January, 1941.

Canadian National Railway Company

WELLINGTON GREY & BRUCE RAILWAY COMPANY, 7 PER CENT. BONDS

AT the semi-annual ballot for November, 1940, the following Wellington Grey & Bruce Railway Company 7 per cent. Bonds were drawn and will be paid at par at the offices of the Canadian National Railway Company in Montreal, Canada, or at Orient House, 42/5, New Broad Street, London, E.C.2, England, on and after the 1st January, that is to say, Bonds numbered:—

89, 103, 367, 577, 653, 686, 1103, 1269, 1282, 1413, 1418, 1564, 1594, 1630, 1639, 1669, 1745, 1908, 1978, 2082, 2127, 2220, 2339, 2372, 2465, 2470, 2474, 2500, 2599, 2666, 2684, 2772, 2963, 2968, 3094, 3188, 3336, 3362, 3373, 3487, 3518, 3543, 3588, 3621, 3626, 3700, 3775, 3805, 4034, 4062, 4078, 4160, 4221, 4353, 4424, 4459, 4595, 4652, 4764, 4799, 4965, 4978, 5189.

In all £6,300 sterling.

Holders of these Bonds will take notice that the interest will cease after 1st January.

A. H. CONEYBEARE,
European Secretary & Treasurer.

London, 1st January, 1941.

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Wednesday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

Universal Directory of Railway Officials and Railway Year Book

46th Annual Edition, 1940-41

This unique publication gives the names of all the principal railway officers throughout the world together with essential particulars of the systems with which they are connected. Much general and statistical information about railways is also concisely presented.

Price 20/- net.

THE DIRECTORY PUBLISHING CO., LTD.
33, Tothill Street, Westminster, S.W.1

Contracts and Tenders

The U.S.S.R. Railways have ordered 10 electric shunting locomotives of 250 h.p. from the General Electric Company, of Schenectady, U.S.A.

It is reported from Istanbul that on January 3 the Turkish Government approved the expenditure of £2,000,000 on British-built locomotives and rolling stock.

The Slovak State Railways have ordered a large number of locomotives from the Vienna locomotive works, states a Bratislava message to the German Official News Agency. Six express locomotives, the message adds, were delivered in December. The delivery of 10 other engines for passenger and goods traffic is planned for the present year, and six large goods locomotives are ordered for delivery in 1942.

Rails for Brazil

As an outcome to Mr. William Jones Mamond's visit to Brazil in August last, a contract has been concluded between the Rio Grande do Sul State Government and the Inland Steel Company of Chicago for the supply by the latter of large quantities of steel rails and accessories to the Viação Ferrea do Rio Grande do Sul. The first shipment, consisting of 5,000 tons of rails and fastenings, is due to be made at the present time, and the order will be completed in four subsequent shipments within two more months. Payment is guaranteed by Rio Grande State promissory notes endorsed by the Bank of Brazil and will be made as follows: 25 per cent. in Chicago on production of inspection certificates, and the remaining 75 per cent. over a period of five years in 20 three-monthly instalments from March 1, 1941.

The South African Railways & Harbours is calling for tenders for the supply and delivery of wheels and axles in accordance with specification. Local representation is essential. Tenders endorsed "Tender No. 3011, Wheels and Axles," should reach the Secretary, the Tender Board, Room 31, South African Railways & Harbours, Headquarters Offices, Johannesburg, or P.O. Box 7784 Johannesburg, by 1 p.m. on February 10. A specimen copy of the specifications and general conditions of tender are available at the Department of Overseas Trade, Millbank, London, S.W.1.

Coal Production in Spain

Spain produces sufficient coal for all her needs, according to a report of the Solid Fuel Regulating Commission in Madrid. The total production of all classes of coal, including anthracite and lignite, which in 1935 amounted to 6,331,900 metric tons, fell in 1937 (during the Civil War) to 1,828,500. The production has now recovered and amounted to 6,089,300 tons in 1939, with an appreciable increase in 1940. Of the 1939 total, 4,434,700 tons were mined in the province of Asturias. A considerable proportion of the coal is used in the form of briquettes. The use of the national coal has been compulsory in Spain for some years past, but the principal railway companies were always allowed to import a quantity of English coal for use on express trains.

Market for Indian Coal in Egypt

European supplies being either curtailed or cut off, attempts are being made to introduce Indian coal into Egypt, learns Reuter's Trade Service from New Delhi. Particulars of qualities and analyses of Indian coal have been supplied to local importers by the Indian Government Trade Commissioner, Alexandria, and Indian exporters as well as importers in Egypt and Palestine and the Egyptian and the Sudan Railway Administrations are stated to have shown keen interest. The difficulty of transport and high freight charges, coupled with the present low prices fixed by the Government, have hitherto stood in the way of importing coal from India, but it is reported that the Alexandria Coal Association is taking up the matter with the Egyptian Government with a view to having the prices raised to make imports possible. On the other hand, the Egyptian railways are understood to be considering the possibility of using local cotton-oil cakes in addition to coal as locomotive fuel. It is said that the price of these cakes will be about half that fixed for Newcastle coal.

Harrow Stops of G.C. Line Trains, L.N.E.R.—From December 9 regular stops at Harrow have been advertised by the two daily services in each direction between Marylebone and Manchester. To allow the necessary time, the 10 a.m. and 3.40 p.m. down start at 9.50 a.m. and 3.30 p.m. respectively, calling at Harrow to take up passengers at 10.11 a.m. and 3.51 p.m. In the reverse direction the 9.45 a.m. and 3.50 p.m. from Manchester (London Road) stop at Harrow at 3.18 and 9.23 p.m., and arrive in Marylebone at 3.45 and 9.46 p.m., instead of, as previously, 3.30 and 9.40 p.m. respectively.

Improved Baker Street-Aylesbury Line Services.—From December 9 some substantial improvements of the service between Baker Street and the Aylesbury line have been in operation. New fast services now leave Baker Street for Aylesbury at 3.42, 4.12, 5.12, 5.42, 6.42, and 7.24 p.m., calling at Finchley Road to connect with Bakerloo tube trains, and then non-stop to Moor Park, after which they call at all stations. The time from Baker Street to Moor Park is 31 or 32 min., and to Rickmansworth 5 min. more. The 3.42 p.m. calls also at Northwood. There are similar expresses to Chesham at 5.30 and 6.12 p.m. from Baker Street. Corresponding service in the up direction is provided each morning by trains leaving Aylesbury at 6.10, 6.43, 6.59, 7.12, and 9.3 a.m., reaching Baker Street at 7.31, 8.4, 8.23, 8.35, and 10.20 a.m.; all are non-stop from Moor Park to Finchley Road, except the 6.59 a.m., which calls additionally at Northwood, and the 9.3 a.m., which calls at Northwood and Pinner instead of Moor Park. The time from Moor Park to Baker Street is 31 or 32 min., and from Rickmansworth 32 to 35 min. There is also a train at 8.11 a.m. from Chesham, fast between Moor Park and Finchley Road.

Railway Stock Market

A more cheerful undertone has been observable in the stock and share markets, where sentiment benefited from the further rise in British Funds and also from the war news. There was, however, only moderate improvement in the volume of business, due to restricted telephone facilities in the City. Home railway securities showed some response to the better market tendency. Chief attention centred on the prior charges, but on balance, gains were shown in junior stocks, activity in which may tend to increase between now and the dividend announcements on February 19. Based on the minimum revenues guaranteed by the Government, it is expected in the market that all the preference stocks will receive their full distributions, with the exception of L.N.E.R. second preference, the payment on which is generally estimated at 1 per cent. The view also remains current that dividends on Southern deferred, and L.M.S.R. ordinary are also likely to be 1 per cent. It is being pointed out that on the basis of their full dividends, L.M.S.R. 1923 preference yields nearly 10¼ per cent., Southern preferred nearly 10½ per cent., and L.N.E.R. first preference as much as 11 per cent. In recent weeks railway stocks have participated very little in the upward trend of values on the Stock Exchange, because of uncertainty in regard to the higher wages claims, rising costs and compensation for war damage. On the other hand, bearing in mind their vital part in the war effort, there is, of course, no reason to expect that remodelling of the financial agreement with the Government will be inequitable to the railways. All points considered, there seems little doubt that home railway stocks are undervalued in relation to other groups of securities, and it appears that some improvement in value can be reasonably anticipated, provided markets continue to show an upward trend.

As compared with a week ago, Great Western ordinary has moved up from 32¾ to 34¼. The guaranteed stock made the better price of 113, the preference stock improved from 81½ to 86½, and Great Western debentures were a point higher at 106. Moreover, L.M.S.R. 4 per cent. debentures further improved from 99½ to 101, and the 5 per cent. debentures were 108. L.M.S.R. guaranteed was 87, compared with 86 a week ago; the senior preference improved from 51 to 52; and the 1923 preference from 37 to 38½; the ordinary stock was also higher at 13⅞. L.N.E.R. debentures reflected the upward tendency in prior charges; the 3 per cents. were 70 and the 4 per cents. 92, but yields would still seem to be attractive. Whereas L.N.E.R. first guaranteed was better at 76½, and the second guaranteed was 60½, L.N.E.R. first preference at 35½ was two points higher on balance; the second preference has rallied from 10¾ to 11 at the time of writing. Among Southern Railway issues, the 4 per cent. debentures were higher at 106, the same as the equivalent Great Western stock. Southern preferred attracted attention in view of the large yield on the basis of the full 5 per cent. dividend, and was 47½, compared with 46 a week ago; the deferred stock became firmer at 10¾. While Southern guaranteed kept at 113½, the preference stock was 84½, compared with 83 a week ago. London Transport "C" remained at 32½, but higher prices ruled for the 4½ per cent. "A" and 5 per cent. "B" stocks. Foreign railway securities were not entirely unresponsive to the better market tendency, but buying was confined to debenture stocks; better prices ruled for Argentine Great Western 5 per cents. and B.A. Western 4 per cents. In response to the encouraging traffic position, Canadian Pacific Railway preference stock was 49, and the common shares of this company hardened to 7¾.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1940–41	Week Ending	Traffic for Week: Total this year	Traffic for Week: Inc. or Dec. compared with 1932	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1940	Prices: Lowest 1940	Prices: Jan. 7, 1941	Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	29.12.40	19,880	– 2,130	52	899,150	727,700	+ 171,450	Ord. Stk.	11½	3½	5	Nil
	Argentine North Eastern	753	28.12.40	ps. 120,300	– ps.20,600	26	ps. 4,154,300	ps. 4,275,800	– ps.121,500	,,	3½	1	2	Nil
	Bolivar	174	Dec. 1940	2,700	– 1,301	52	45,200	51,531	– 6,331	6 p.c. Deb.	6½	5	6	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	8	5	6*	Nil
	Buenos Ayres & Pacific	2,801	28.12.40	ps.1,402,000	+ps. 96,000	26	ps.30,364,000	ps. 32,056,000	–ps.1,692,000	Ord. Stk.	4½	1	2	Nil
	Buenos Aires Central	190	2.11.40	$82,900	– $12,100	18	$1,701,400	$2,029,600	– $328,200	—	—	—	—	—
	Buenos Ayres Great Southern	5,082	28.12.40	ps.2,185,000	–ps.388,000	26	ps.50,817,000	ps. 53,712,000	– ps.2,895,000	Ord. Stk.	10⅜	3	5	Nil
	Buenos Ayres Western	1,930	28.12.40	ps. 828,000	+ps. 11,000	26	ps.17,735,000	ps. 19,203,000	– ps.1,468,000	,,	8⅜	2	3¼	Nil
	Central Argentine	3,700	28.12.40	ps.1,408,350	– ps.91,600	26	ps.36,262,150	ps. 47,986,950	–ps11,724,800	,,	8¾	2	3	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4	¼	1½	Nil
	Cent. Uruguay of M. Video	972	28.12.40	23,437	– 2,477	26	530,874	498,265	+ 32,609	Ord. Stk.	3½	½	1½	Nil
	Costa Rica	188	May 1940	17,282	– 7,020	48	193,339	245,516	– 52,177	Stk.	23⅛	14	16½	12¼
	Dorada	70	Nov. 1940	11,800	– 1,900	48	134,200	150,400	– 16,200	1 Mt. Db.	99	97½	98	6¹⁄₁₆
	Entre Rios	810	28.12.40	ps. 169,500	– ps. 76,800	26	ps. 5,776,300	ps. 6,581,800	– ps 805,500	Ord. Stk.	4	¼	1½	Nil
	Great Western of Brazil	1,016	28.12.40	12,000	+ 800	52	557,200	480,600	+ 76,600	Ord. Sh.	4/–	1/–	2/–	Nil
	International of Cl. Amer.	794	Sept. 1940	$325,789	– $37,196	39	$4,405,419	$4,486,381	+ $80,962	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	9d.	9d.	½	Nil
	La Guaira & Caracas	22¾	Dec. 1940	4,730	– 2,455	52	77,230	74,961	+ 2,269	—	6	4	—	—
	Leopoldina	1,918	21.12.40	22,675	– 1,384	51	1,189,461	1,097,612	+ 97,849	Ord. Stk.	2⅞	½	¾	Nil
	Mexican	483	7.10.40	ps. 270,900	– ps. 300	14	ps. 3,816,500	ps. 3,954,000	– ps. 137,500	,,	2/11½	⅛	⅛	Nil
	Midland of Uruguay	319	Oct. 1940	12,058	+ 3,732	17	45,052	34,464	+ 10,588	—	—	—	—	—
	Nitrate	386	31.12.40	8,677	– 4,616	52	175,723	132,419	+ 43,304	Ord. Sh.	2¾	1½	1⅞	7¹¹⁄₁₆
	Paraguay Central	274	28.12.40	$3,471,000	+ $933,000	26	$88,164,000	$84,922,000	+ $3,242,000	Pr. Li. Stk.	41	36	36	16¹¹⁄₁₆
	Peruvian Corporation	1,059	Dec. 1940	64,856	– 2,585	26	393,325	383,935	+ 9,390	Pref.	4	1	1½	Nil
	Salvador	100	2.11.40	£7,687	– £925	18	£158,338	£174,282	– £15,944	—	—	—	—	—
	San Paulo	153½	22.12.40	32,500	– 4,042	51	1,839,716	1,671,429	+ 168,287	Ord. Stk.	50	23	27½	9¹⁄₁₆
	Taltal	160	Oct. 1940	2,595	– 765	17	9,320	7,785	+ 1,535	Ord. Sh.	15/1½	⅜	½	9¾
	United of Havana	1,353	28.12.40	15,025	– 1,318	26	385,086	447,634	– 62,548	Ord. Stk.	⅜	¼	⅜	Nil
	Uruguay Northern	73	Oct. 1940	1,271	+ 301	17	4,159	3,654	+ 505	—	—	—	—	—
Canada	Canadian National	23,695	21.12.40	1,116,822	+ 221,753	51	47,962,215	39,632,546	+ 8,329,669	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	– 4 p.c.	Perp. Dbs.	86	68	86	4⅜
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	105¾	95¹³⁄₁₆	103	3¾
	Canadian Pacific	17,153	31.12.40	996,000	+ 147,800	52	34,193,000	30,256,200	+ 3,936,800	Ord. Stk.	9¹⁄₁₆	4⅛	8	Nil
India†	Assam Bengal	1,329	30.4.40	45,187	+ 6,529	4	135,060	120,437	+ 14,623	Ord. Stk.	99⅜	71	99	3
	Barsi Light	202	10.11.40	12,435	+ 10,080	30	98,700	69,285	+ 29,415	—	—	—	—	—
	Bengal & North Western	2,091	Nov. 1940	258,900	+ 38,081	10	494,325	421,197	+ 73,128	Ord. Stk.	283	234	250⁵⁄₈	6⅜
	Bengal Dooars & Extension	161	Sept. 1940	14,625	+ 508	26	78,405	66,243	+ 12,162	,,	218½	195	225	5¼
	Bengal-Nagpur	3,269	31.10.40	258,450	+ 51,860	29	4,963,715	4,495,671	+ 468,044	,,	96	83⅞	96½	4⅛
	Bombay, Baroda & Cl. India	2,986	20.12.40	298,500	– 4,200	38	6,989,775	6,343,425	+ 646,350	,,	108	99	107½	5⁹⁄₁₆
	Madras & Southern Mahratta	2,967	31.10.40	172,125	+ 39,401	29	3,454,839	3,299,312	+ 155,527	,,	104	97⅞	101½	7⅛
	Rohilkund & Kumaon	571	Nov. 1940	46,125	+ 2,363	10	89,625	81,517	+ 8,108	,,	284	238	250	6⅜
	South Indian	2,542	20.10.40	123,336	+ 20,548	28	2,549,052	2,307,546	+ 241,507	,,	93¾	83	84½	5¹⁵⁄₁₆
Various	Beira	204	Sept. 1940	73,186	—	52	905,968	—	—	—	—	—	—	—
	Egyptian Delta	623	30.9.40	7,602	+ 1,784	26	89,819	94,881	– 5,062	Prf. Sh.	7/10½	⅜	½	Nil
	Kenya & Uganda	1,625	—	—	—	—	—	—	—	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	53	44½	46½	7½
	Midland of W. Australia	277	July 1940	11,397	+ 139	4	11,397	11,258	+ 139	Inc. Deb.	88	80	82½	4⅝
	Nigerian	1,900	26.10.40	31,270	+ 7,575	30	1,059,899	874,277	+ 185,622	—	—	—	—	—
	Rhodesia	2,442	Sept. 1940	482,182	—	52	4,910,860	—	—	—	—	—	—	—
	South Africa	13,287	23.11.40	767,017	+ 126,242	34	23,247,021	21,939,202	+ 1,307,819	—	—	—	—	—
	Victoria	4,774	Aug. 1940	888,289	+ 190,022	9	1,756,717	1,383,157	+ 373,560	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of ¹⁄₁₆ Argentine traffics are now given in pesos
* Quotation is of June 17, 1940; dealings subsequently prohibited † Receipts are calculated @ 1s. 6d. to the rupee